The Journal
OF THE
Jamaica Agricultural Society.

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BOARD OF MANAGEMENT.

THE usual monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 82 Hanover Street, Kingston, on Thursday, 18th July, 1907, at 11.40 a.m. Present: His Excellency Sir Sydney Olivier, K.C.M.G., presiding; the Hons. H. C. Bourne, L. J. Bertram, H. T. Ronaldson, R. P. Simmonds, Messrs. D. Campbell, Robert Craig, C. A. T. Fursdon, E. W. Muirhead, R. A. Walcott, and the Secretary, John Barclay.

Apologies for absence were submitted from Messrs. John Cameron, J. Shore, and J. R. Williams. The Hon. Dr. Pringle wrote that he would be absent from the Island for four months.

Minutes. The minutes of the previous meeting having been printed, and copies sent to each member, were taken as read, and confirmed.

His Excellency said it gave him great pleasure to be present again at a meeting of the Board of Management of the Agricultural Society, as a member of the Board, and this time as its President, under circumstances in which he hoped they would be able, for a long time, to do good work together. The attention of their Secretary, and the attention of all of them had been taken up for some time past with other work, but now that the stress was over, they would be able to get the society at vigorous work again. He would confess that it did seem to him in going about the island since his arrival, that the work of the society, and the branch societies, had, in some respects, lost its hold, and had gone back. But, possibly, as his investigation was only superficial, this might be a mistaken opinion on his part. The members could rest assured that anything he could do to assist in invigorating and spreading the work of the society, would be done with the greatest personal interest and satisfaction, as he was fully convinced that the work of the society was of the greatest value to the island; that the society had been, was still, and would continue to be, one of the great agencies in promoting agriculture in the island. He was also pleased to be able to tell them that Lord Elgin took special interest in the society, owing to the fact that his father, when Governor of Jamaica, was the founder of the first

agricultural society established here. He had got this information from Lord Elgin when speaking to him about the Jamaica Agricultural Society. He (the speaker) was under the impression that Sir Henry Blake was the founder of agricultural societies in Jamaica, and told his Lordship so, whereupon Lord Elgin replied: "Surely you must be wrong, for I have a gold medal presented to my father by the then Agricultural Society." Next day Lord Elgin showed him a large, handsome gold medal, which had been presented to his father as founder of an agricultural society here. Evidently, continued the Governor with a smile, agricultural societies were very prosperous in Lord Elgin's time, and he could only hope that when his *regime* was over, the members of the Agricultural Society would be generous enough to present him with a gold medal too (laughter).

Government Veterinary Surgeon. The matter of the appointment of a Government Veterinary Surgeon, who should also be Inspector of Stock, was discussed.

The President asked if the Board could recommend any steps to be taken as to the appointment of a Government Inspector of Stock; the appointment of Mr. Tavares was meantime temporary.

The Secretary said the only other veterinary surgeon, available in Kingston, was Mr. Linton, who was a graduate of Toronto, and who had only lately come to the island, and taken up the late Dr. Gibb's practice. He did not know, however, if members of the Board had yet had any personal experience of Mr. Linton's ability. Mr. Tavares did not possess the degrees usually insisted upon, but members of the Board of Agriculture, when the matter had been discussed by that Board, had spoken well of his practical ability.

Mr. Craig said that there was a draft bill prepared some time ago, and revised by the Agricultural Society, which provided for a Government Inspector of Stock. He thought that the Government should make up their minds to carry out the provisions of this bill. The Colonial Office might be asked to ask a professor of one of the best colleges in the United Kingdom to select a man with the best qualifications for service here. Veterinary science had progressed so much of late that they ought to have an up-to-date man.

Mr. Bourne said that it was the question of cost which had wrecked the bill when it was brought up.

The President said he had not yet seen the bill. The last letter, from the Colonial Secretary's Office on the subject, was, that the matter was not pressing. The question could not be dealt with until the Legislative Council met. Meantime he would look up the bill.

Mr. Bourne said he took it that, for the present, Mr. Tavares would continue to act as Inspector of Stock. This was agreed to.

Free Postage. The following letter from the Colonial Secretary's Office was submitted:—

No. 6363-7672. 5th July, 1907.

I am directed by the Governor to acknowledge the receipt of your letter, dated the 25th ultimo, re-submitting the question of allowing free

postage for four Instructors, employed by the Jamaica Agricultural Society, by means of franked envelopes to be issued by you from the office of the Society.

2. In reply I am to state, for the information of the Board of Management, that His Excellency understands that the correspondence, for which free postage is asked, is to enable Instructors to answer enquiries from correspondents in the country, and to say that, provided it is strictly understood that the franked envelopes are only to be used for such correspondence, and for writing to the Secretary, His Excellency is prepared to approve of what is proposed in your letter, on the further understanding, however, that the Instructors must account for the envelopes issued by sending to the Secretary a monthly list of the letters so franked, and their subjects.

The Secretary said he had advised the Instructors of this concession, and the conditions. He would check their lists of letters each month. They were also to send in quarterly requisitions for stationery, which he would supply.

Elder, Dempster & Co's Money. The Secretary read the following letter from the Colonial Secretary's Office :—

No. 6328-7791. 4th July, 1907.

I am directed to acknowledge the receipt of your letter, No. 765, of the 27th ultimo, reporting the appointment of Mr. J. Hirst as Instructor for the new Instructor's District created, comprising the Parishes of St. Catherine and Clarendon, and asking to be informed how the balance accumulated, paid by Messrs. Elder & Co., may be drawn.

2. In reply I am to ask you to be so good as to furnish, for His Excellency's information, a complete statement of the proposed appropriation of this money, including the sum received for back payments, as advised in my letter, No. 3957-4625, of the 26th April.

The Secretary stated that he had sent on a copy of the same statement of account that he had submitted to the Board, which he thought would be explicit.

Instructors. The Secretary said he had advised the Board of Agriculture of the recommendations of the Board of Management as to the new and additional arrangements, which they agreed to. He had also advised the Board of Agriculture Instructors and the Society's Instructors, and had arranged with them about the boundaries of their districts, so that there would be no overlapping, and there would now be more continuity and homogenity in the work than had hitherto existed.

Bulls. The Secretary reported that Mr. Lewis had reported to him that the red Shorthorn bull, stationed with him at Mandeville, had taken ill, his temperature being 105, and he had asked that Mr. Tavares, the veterinary surgeon, be sent up to treat him.

Mr. Lewis had treated the animal, and he had confidence in his skill and care, but as it saved responsibility on Mr. Lewis and himself, he had sent Mr. Tavares. He read the latter's report and course of treatment, and later advices reporting that the bull had recovered.

The Secretary was instructed to pay Mr. Tavares' bill, amounting to £5 10s.

The Secretary also read letter from the Colonial Secretary's Office as follows :—

No. 6309-7530. 3rd July, 1907.

I am directed by the Governor to acknowledge the receipt of your letter, No. 697, of the 21st ultimo, relative to the Veterinary Account for £15 11s. 6d. paid by you in respect of the two bulls presented by Sir Alfred Jones, and, in reply, to say that the Legislative Council having voted the amount, the Treasurer has been instructed to pay it to you.

Import Duty on Live Stock.

The Secretary said the papers on this matter had not returned from circulation among the Live Stock Committee. He had expected them back in time for this meeting.

Importation of Seeds and Plants.

The Secretary read the following letter from the Colonial Secretary's Office :—

No. 5640-6757. 12th June, 1907.

I am directed by the Governor to acknowledge the receipt of your letter, No. 19, dated the 22nd April last, and to forward to you a copy of a letter from the Commissioner of Agriculture for the West Indies, with regard to the suggestion of the Director of Public Gardens that the proclamation prohibiting the importation into Jamaica of seeds or plants from Natal, South India, Ceylon, Mauritius, Java, and Fiji should be withdrawn.

2. I am to say that His Excellency would be glad if the Board of Agriculture would be so good as to state whether, on re-consideration of the matter, they concur in Sir D. Morris' opinion that the proclamation might be withdrawn, provided that such seeds or plants are regularly disinfected before they are admitted.

No. J 1943. Imperial Department of Agriculture for the West Indies,
Barbados, 16th May, 1907.

Sir,—I have the honour to acknowledge the receipt of your letter, No. 3158-3866, of April 5 last, in which you invite my views on the proposal that the proclamation of 2nd December, 1887, prohibiting the importation of seeds or plants from Natal, South India, Ceylon, Mauritius, Java, and Fiji should now be withdrawn.

2. In view of the fact that the persons chiefly concerned in the matter, as stated in Mr. Fawcett's letter (No. 2525 of March 21, 1907), are agreed "that there should be no danger now" to the coffee plantations of infection from *Hemeleia vastatrix* by importing seeds or plants from the countries named above, I would suggest that, provided such seeds and plants are regularly disinfected before they are admitted, the proclamation of December 2, 1887, may now be withdrawn.

3. I recommend, however, that careful watch be kept, in order that, on the first signs of the appearance of the *Hemeleia* on coffee plants at Jamaica, arrangements may be made to deal promptly with it.

D. MORRIS, Commissioner of Agriculture for the West Indies.

After discussion this was agreed to.

Ratin.

Reports on the experiments with Rat Virus, called Ratin, were submitted. Mr. Craig reported as follows :—

I had the virus, sent me by the Society, placed as prescribed, in and around four different sets of buildings, where rats were numerous, on the 29th June. The can, containing it, was marked "Made in Denmark, 6th May, 1907. Effective for two months from above date." A lot of air or gas escaped on opening the can, but it was not offensive. I wrapped the

contents in newspaper, as directed, which is, I think, a mistake, as only a few of these papers were touched. Without my direction or knowledge, the papers, placed in certain buildings, were opened by the persons who set them down, and, in nearly every case, the stuff was eaten up clean. It has but a faint odour, which is hardly perceptible when wrapped in newspaper, and so was, apparently, unheeded by the virmin.

In one building, a tobacco curing house, the virus was put down open, and entirely devoured. It appeared to have the effect of a deadly poison, as, next day, not a rat was seen, and shortly after the john-crows were busy pulling out the dead and smelling virmin from the thatched roof. A few rats have been seen since in a dazed condition, and others quite lively, which may have come in from some distance.

The results in other buildings, up to now, is, that fewer rats have been seen, either dead or alive, and fewer have been caught in traps, which have continued to be set. One or two have been picked up dead, with some of the fur gone, but that is probably the work of ants.

It is premature to express an opinion on the effect of the virus as virus. I have not yet observed any. The result, so far, is similar to poisoning, and as rapid, where freely eaten. It is claimed that "when eaten by rats they contract a deadly contagious disease in one to three weeks." Were this proved, one would expect that gradually all the rats, in or around buildings, would die or disappear, and the first supplies that come from the fields and trees, would be attacked in turn and also disappear. This is a large order, and I am afraid somewhat utopian, but I propose to try another experiment with the same virus, which I have on order, and, later, hope to present another report.

Mr. Campbell said bad gas rushed from the tin he got when he opened it, and the stuff inside was sour. He placed it, according to directions, in his cocoawalk, but the rats did not take the bait.

The Secretary said he found the ratin made up in convenient form for setting—in the form of a pudding. It was fresh and good, and was readily taken by the rats. In view of the setting of this virus he had relaxed the usual efforts made to keep rats down, and there were plenty about. Within a week, however, after taking the bait, few rats were seen about, but none had been observed staggering about in the way the other virus had affected them. There were so many dogs about, however, that perhaps this accounted for it. He could not, therefore, say whether the virus had acted as a powerful ordinary poison would, as Mr. Craig's experience denoted. He would send an account of the experiments to the Ratin Company.

Secretary and Assistance Committee. The Secretary read the following letters from the Colonial Secretary's Office :—

No. 6229-7914. 2nd July, 1907.

I am directed by the Governor to inform you that His Excellency desires, if you will be so good as to give him your assistance in the administration of the Assistance Fund to be created under the provisions of the Law, of which a copy is enclosed, to appoint you to be a member of the Assistance Committee. The Governor proposes himself to act, for the present at any rate, as Chairman.

2. His Excellency, I am to add, desires to be in a position to call a meeting of the Committee at an early date.

No. 6616-8143. 11th July, 1907.

I am directed by the Governor to inform you that, pending the decision of the Board of Management of the Jamaica Agricultural Society

His Excellency has pleasure in appointing you, provisionally, a member of the Assistance Committee, and will be glad if you will attend their meetings.

The Secretary said he had submitted the matter, by letter, to the members of the Board, and eight advised that he should not act, and two that he might serve. He had given most of his evenings, for a good many months back, to relief work willingly, and was glad to have had health, strength, and activity to assist in the crisis caused by the earthquake. Now, however, that crisis was over; but there was another crisis in agriculture caused by the drought, and agricultural work demanded all his attention. He desired to keep in full touch, and in practical sympathy with agricultural enterprise, and as he was most interested at present in assisting to establish the cotton industry in St. Andrew, he would like to have time, available in the evenings, to watch and help that industry. For these principal reasons, among others, he hoped His Excellency would excuse him serving on the Assistance Committee.

His Excellency said he was anxious to have the assistance of Mr. Barclay on the Assistance Committee, because he had done extremely hard work during the last six months, and many persons had told him of the very valuable help Mr. Barclay had rendered in connection with the Relief Committee. He was anxious to take advantage of Mr. Barclay's experience, but if he was satisfied, and he thought Mr. Barclay was conscientiously satisfied, that he could more profitably put in work for the Agricultural Society than he could for the Assistance Committee, he did not think he would be justified in pressing him to serve on the Committee.

Hindoo Labourers from Peru. The Secretary read the following correspondence from the Colonial Secretary's Office :—

No. 5522-6524. 11th June, 1907.

A copy of correspondence, in regard to the question of giving employment in Jamaica to Hindoo labourers and artisans from Lima, Peru, forwarded herewith for the information of the Agricultural Society.

(Copy of Cable.) From Beauclerck (British Minister at Lima) to Governor of Jamaica.

Many Hindoo labourers and artisans leaving for Kingston. Can they obtain work on arrival ?

No. 4931-6453. 25th May, 1907.

I am directed by the Governor to inform you that the following telegram has been received from the British Minister at Lima, viz : "Many Hindoo labourers and artisans leaving for Kingston. Can they obtain work on arrival ?" and to say that His Excellency will be glad to have your observations on this question as soon as possible.

The Hon. Director of Public Works.

The Protector of Immigrants, Kingston.

(Copy) Immigration Office, Jamaica, 25th May, 1907.

Sir,—In reply to your letter of to-day's date, I have the honour to inform you that the Protector is ill at home at present, but I have consulted him in the matter, and he is of opinion that, owing to the excessive drought, planters have no difficulty, at present, in getting all the labour they want from the native populations, who are anxious to get employment in consequence of damage to their own crops.

2. This has been proved by the fact that, notwithstanding the recent reduction of indenture fee for East Indian immigrants to £17 10s., applications for only 589 immigrants were received, and these have now been ordered.

3. In any case employers are not likely to agree to indenture East Indian labourers, who have not been recruited and medically certified as fit for labour, in accordance with the prescribed Government procedure.

4. It might, of course, be possible to obtain work for these people on their arrival, if I were informed of the numbers likely to come.

5. With regard to artisans, I am not in a position to afford any information as to the likelihood of their obtaining employment, and would suggest that the Director of Public Works be consulted in the matter.

I have, etc.

(Sgd.) CHAS. W. DOORLY,
For Protector of Immigrants.

The Hon. the Colonial Secretary, Kingston.

Mr. Bourne stated that these labourers had probably been stopped in time by his telegram to Lima. If not there, they would likely be stopped in Panama; at any rate none had come here as yet.

Agricultural Conference. The Secretary read the following letter from the Colonial Secretary's Office:—

No. 6699-8260. 13th July, 1907.

I am directed by the Governor to state, for the information of the Board of Management of the Jamaica Agricultural Society, that the Imperial Commissioner of Agriculture for the West Indies has addressed a communication to His Excellency on the subject of the place of meeting of the next Agricultural Conference.

2. Sir Daniel Morris states that when Sir Alfred Jones, the members of his party, and the delegates to the last Agricultural Conference, were returning from Jamaica after the earthquake, a general feeling was expressed that, with the view of restoring confidence amongst tourists and others, it would be desirable to hold another Conference in Jamaica, and Sir Alfred Jones obtained a pledge from Lord Dudley and others that, if he would make the necessary arrangements, they would come out with him. Sir D. Morris states that Captain Owen, superintendent at Barbados of the Royal Mail Company, is also very favourable to the idea, and believes the holding here of the Conference would be likely to prove most useful in restoring confidence in the island amongst people in the United Kingdom, the United States of America, and Canada.

3. Sir Daniel Morris undertakes, if the Government and people of Jamaica desire that the next Conference should be held here, and are prepared to join heartily in it, to take the matter in hand, and do the best on his part to make it a success. He has already written Sir Alfred Jones on the subject, and expects to receive a reply by the middle of this month. He suggests that, if Kingston is not considered a suitable place for the Conference to meet, Port Antonio or Mandeville might be found convenient.

4. The Imperial Commissioner proposes going to Canada early next month, and explains that the time is now approaching when he must begin making his arrangements for the next Conference. He would be glad, therefore, to learn, as soon as possible, the views of the leading agriculturists, and of the Government of the Island, on the question, whether the next Conference should be held in Jamaica or not.

5. Under these circumstances His Excellency invites an expression of the opinions of the members of the Board as early as possible. His Excellency is, himself, strongly of opinion that everything possible should

be done to further the proposal, and he would desire to be able to inform Sir Daniel Morris that the Government and the Jamaica Agricultural Society will do all in their power to render it a success.

His Excellency said he thought they should be willing to organize another Agricultural Conference in Jamaica. The question to decide was, whether the Conference should be held in Kingston, Mandeville, or Port Antonio.

Mr. Walcott said the delegates could be comfortably housed in Kingston, at Knutsford Park Hotel.

Mr. Craig asked whether the Government would be prepared to help towards the cost of running the Conference this time. Last time it was done by public subscription.

The President said that if £100 would be sufficient, he thought he could guarantee that amount from the Government.

The Secretary said he thought that amount would do.

After discussion it was decided, on the motion of Mr. Walcott, seconded by Mr. Simmonds, that His Excellency the Governor should be asked to cable to Sir Daniel Morris that the Government and the Jamaica Agricultural Society desired the next Conference to be held here next January, and would do all in their power to make it a success.

The Secretary suggested that as the Kendal Show Committee had been considering holding their show, as usual, in November, they might be asked to hold it at the same time as the Conference. He was instructed to suggest this to the Committee.

Brussels Convention. The Secretary read the following letter from the Colonial Secretary's Office :—

No. 6496-7531. 9th July, 1907.

I am directed by the Governor to acknowledge the receipt of your letter, No. 698, dated the 21st ultimo, enclosing a copy of a resolution passed at the Half-yearly General Meeting of the Jamaica Agricultural Society, held on the 20th ult., relative to the intention of His Majesty's Government to withdraw from the Brussels Convention, and, in reply, to say that a copy of the resolution has been transmitted to the Secretary of State for the Colonies.

Journal. The Secretary reported that the Journal Committee had considered three tenders made for the printing of THE JOURNAL, and recommended that the tender of Mr. Aaron M. Sollas be accepted as the lowest, and also most satisfactory otherwise. This was agreed to, and the Secretary directed to make the necessary arrangements.

Seeds and Plants. The Secretary submitted a minute re supplying seed and plants, showing there was a constant demand for supplies of cotton seed, great corn, guinea corn, cow peas, potatoes, vegetable seed, etc., and also requests from abroad for samples of various products, and how badly equipped the office was for storing, and keeping these, and treating them with carbon bisulphide; and how much work was devolved on himself and the staff, in addition to ordinary clerical work, in securing and testing supplies, in weighing, parcelling and despatching them. He

also asked for a grant of £10 (to be taken from unused allocation for rent) to supply good seed corn, beans, peas, and sweet potato slips to help the settlers in the drought districts of St. Elizabeth, so that they could be able to plant good seed whenever sufficient rain comes.

A grant of £10 was allotted, and the Secretary instructed to see it applied to the best advantage.

Affiliation. The Darliston Agricultural Society, lately formed, applied for affiliation, and on the Secretary reporting that the rules governing new branches had been fulfilled, affiliation was granted.

Instructors. The Secretary said, as directed, he had printed forms for the Instructors to submit their monthly itineraries and reports of work done, and he submitted these forms as returned, completed, for the information of the Board. Besides the bare forms of itineraries, the Secretary said he asked for some observations from the Instructors on their work, and on weather, crops, and anything notable happening in local agriculture.

New Members. The following new member was elected ; Richard Sapper, care of the German Vice-Consul, Coban, Guatemala.

Adjournment. The meeting adjourned to Thursday, the 15th August, 1907, at 11.40 a.m.

NOTE.—As there were not sufficient matters of importance to be considered, no meeting of the Board was held in August. The following meeting is on Thursday, 19th September, at 11.40 a.m.

HOW TO GROW SEA ISLAND COTTON IN JAMAICA.

1. While cotton will grow everywhere in Jamaica, from the seaside to over 3,000 feet in the hills, and wild cotton is common, the particular variety of cotton which we want to grow, because the markets abroad want it, and will pay the highest price for it, is Sea Island Cotton. The common cotton growing wild is either Kidney Cotton or Upland Cotton, and neither are of any use for our purpose, and any bushes of these kinds growing near where we are going to cultivate Sea Island Cotton should be cut down in case they cross and spoil our seed for planting.

2. Sea Island Cotton is best grown in the lowlands, for although it will grow well in the hills, and inland, there is more expense to get it marketed from there, and other things will grow in the hills better. The idea is to grow it where people cannot grow bananas, coffee, and cocoa, and have little choice of what they can grow to ship abroad, and bring money into the Island. Guinea grass and sweet potatoes we only sell to each other, but we want something extra to sell abroad. Light soil and a dry climate suit Sea Island Cotton best, and so we have plenty of districts to plant it in. It has already been proved that St. Andrew suits it as well as anywhere in the *world*. Sir Daniel Morris, the head of the Imperial Department of Agriculture for the West Indies, who has seen cotton

growing in the Sea Island (United States) themselves, saw Mr. Desporte's cotton field here, and said it was as fine as any he had ever seen. It has been grown successfully at Shortwood College, Hope, Yallahs, Spanish Town, Old Harbour, in Vere, St. Elizabeth, St. James, Trelawny, and elsewhere, on dry soils, and in dry climates. The prices for the cotton already shipped have been most satisfactory.

3. The land should be forked, or ploughed roughly, in the beginning of July, for planting in August, and left to weather for two weeks. Then it should be gone over again and made fine as possible. If a plough is used, shallow drills should then be made, four feet apart, and three to four seeds planted together, every two feet. If the hoe is used, holes should be made exactly as if planting corn, two to three feet apart, three and a half to four feet between rows, and three or four seeds dropped in, covered not deeper than an inch, and the soil pressed down with the blade of the hoe. The lines should be kept as straight as possible each way, like so :

3 feet between plants.

*_________*_________*_________*_________*

4 feet between rows.

*_________*_________*_________*_________*

4 feet between rows.

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The seeds can be roughly tested before planting by flinging them in a pan of water; letting them stand an hour, and taking out all those that float as bad.

In ordinary seasons rain falls in the lowlands about the 12th of August, and showers usually continue through August. The land should be all ready by the end of the first week of August, and when rain falls after the 15th, planting should begin and may continue up to the 15th of September, but if rain falls, the nearer the 15th of August, planting is done the better.

4. The young plants will appear—just like young peas—in three or four days, if the soil is moist, or rain falls, and if all of them grow strong, all but one should be cut off close to the earth with scissors. But if any plants fail or grow weak elsewhere, two may be taken out gently, not by pulling, but by raising up the earth, preferably with a trowel, until they come out easily. Then the earth should be pressed down firmly around the two left. Those taken out should immediately have their roots dipped in a mixture of earth and water, like mud, to preserve the roots from drying, and be planted, where needed, *at once.*

5. Where planted so wide as four feet between the rows, and all the land having been forked as is recommended, and if rain falls well, a crop of "red peas" can be taken off between the rows; even black-eye peas can be grown between, but the land must be kept clean weeded round the cotton plants.

6. We insist that it is best to fork or plough the land through to aerate it, and make it easy for the young roots to spread. The more the roots are able to spread through the soil, the more food-stuff they will be able to absorb, the quicker they will grow, and the better they will bear.

But when men are late in making up their minds to start, and to get ready in a hurry, the wire grass can be hoed off, and when dried, drawn into rows, leaving a two-feet space between rows. These rows can be forked right through, or if the man is in a big hurry (which, of course, he should not be) holes may be forked two feet apart, leaving them until a shower of rain falls; then break the soil fine and plant three seeds. These will grow well, and he can break up the rest of the soil between the plants at his leisure. If dry weather comes along, the dried grass between the rows can be drawn close to the plants as a mulch and for manure. Two weedings are generally enough.

7. In November and December the plants will flower, and in January picking will begin. When the bolls open and the cotton looks fluffy and loose, it is ready for picking. Women and girls do the picking of cotton best as their fingers are more supple and slender. One practical lesson is better than a written description of picking. The cotton must be taken out with the first three fingers, clean and in one bit, and not torn out in several attempts. The pickers wear aprons to drop the cotton in, and when the aprons are full, empty the cotton into large baskets placed in the row, which again, when full, are taken and the contents weighed. The pickers are paid by the weight picked.

8. Cotton should only be picked when dry, and so picking does not begin until the dew is off. If it happens to get wet, after picking, it is spread out to dry in the sun for a couple of hours, and is all right again. It is taken by carts to the ginnery for the cotton to be separated from the seed. The seed here generally weighs from 70 to 75 per cent. of the total weight, leaving a little over a quarter of the weight in cotton. It requires suitable machinery for the oil to be taken from the seed, and as we have none here—more is the pity—it will require to be exported. The oil is used for cooking as "sweet oil," and for making soap. The meal, after the oil is taken away, is used for feeding cows, and for manure. If we had proper machinery here—and there would be if there was plenty of cotton seed to keep mills going—we could supply our own sweet oil, make our own soap, feed our dairy cows, and find cheap manure for the land. So that you see how much a cotton industry would mean to Jamaica.

1. It would utilize lands at present producing almost nothing, so that they could give a gross return of £10 to £12 an acre, and a net profit of £5 to £6 per acre.
2. It would employ women and girls in the light work of picking; just the class who find it hard to get work suitable for them.

3. It would enable us to own oil mills, and soap works here, and employ more labour; would save us importing oil and soap, cotton seed meal for cattle feed, and fertilizer for enriching our fields.

[The above has been issued in the form of a leaflet by the Agricultural Society for the information of intending cotton growers in St. Andrew, but the information will be found useful all through.]

NOTES ON THE CONTROL OF THE COTTON CATERPILLARS.

THE damage done by the caterpillars to the cotton cultivation of the past season appears to have so discouraged planters that, perhaps, a few notes on the practical methods of dealing with the pests may prove encouraging to those who are still desirous of continuing the cultivation. In the use of insecticide for the destruction of caterpillars, I have obtained the best results by dusting with a mixture of 6 lbs. finely-sifted building lime, and 1 lb. of Paris-green or London-purple. This mixture is applied by means of a bag attached to the end of a stick. The bag is made 10 inches long and 4 inches deep, tacked around the end of a stick through which a hole, 1 inch in diameter, has been bored for filling the bag. A cloth, called ticklingberg, obtainable in Barbados, is the best material I have used for dusting bags, but any cloth which does not dust too freely may be used. The cotton being grown in rows from 4½ to 5 feet wide, a boy can walk along the row shaking the mixture from the bag on the cotton bushes, particularly on the youngest leaves, taking care that the wind blows the dust from him, each member of the dusting gang being placed several rows from the other. A boy can dust at least one acre per day. With respect to spraying insecticides, I have found that it is not practicable over large areas as the carrying of water, and the much longer time taken in its application, renders spraying more expensive, requiring double the labour to cover the same acreage in a given time. This means a loss of time, which is of the greatest importance. I have never used arsenate of lead, but I consider that spraying is so impracticable that no advantage in the poison can compensate. A knapsack sprayer costs about £2 10s. against a dusting bag costing a penny, which covers double the acreage in the same time. Paris-green is said to be a better insecticide than London-purple, but I used a ton of London-purple last year, and found no difference in the result. London-purple is only about half the price of Paris-green. I have been working properties, growing about five hundred acres of cotton per annum, for several years, and my rule has been to put in a stock of 10 lbs. of Paris-green or London-purple for each acre of cotton cultivated, and I have at times run very near to using the full amount. My experience is, that a large acreage of cotton is always attacked by caterpillars, the most luxuriant parts of a field being selected by the moth for depositing its eggs, and that there is no season of freedom,

or even comparative freedom, from this pest. Caterpillars come every year, and, after they are found in the fields, the application of insecticides has to be continued, more or less, until the cotton ripens. Small patches of cotton, or even large patches, planted in any locality for the first time, frequently escape caterpillars for the first season, but when the cultivation is continued annually, there is no escape. It is a very good plan to offer a small reward for the first caterpillar brought to you, and, after one is found, each field must be searched every day, and, on a field being found to be infested, every available hand must be turned on to dust, as it is of the greatest importance that no time be lost. A large quantity of the mixture should always be kept ready to avoid delay. A sweet smell from a cotton field indicates that the caterpillars are feeding in full force. It may be useful to know that a fair return per acre would be about 715 lbs. of seed cotton, or 200 lbs. of lint, as each 100 lbs. of seed cotton contain about 28 lbs. lint. I have obtained an average of 1,178 lbs. of seed cotton, yielding 330 lbs. of lint per acre, but such a return is exceptional.—C. WATSON, New Yarmouth, Vere.

MULCHING.

THERE are parts of the world, where, with only nine to fifteen inches of rainfall, during only from one to three months of the year, the farmers, by means of deep preliminary ploughing and thorough refining of the soil, thus making a deep, soft seed bed, are able to raise fine crops of grain and roots. The soil is made so soft that when the rains fall every drop sinks in. The water cannot run off as it would do over hard ground. Then when the surface dries a little, the seed is quickly planted, and by constant surface cultivation thereafter, the soil is kept soft and loose, which retains the moisture stored below, and which the plant roots draw upon as they want. They thus get all they require for six months after the last drop of rain has fallen, and until the crops are reaped. This kind of cultivation presupposes ploughable lands, and skilled labour capable of a rush of work at seasons, and annual and half-yearly crops.

For nine-tenths of the land cultivated in Jamaica, and for our principal and most vital crops—bananas and cocoa, with rubber or other shade trees growing together, for coffee and for cocoanuts, whether growing by the seaside or on our hillsides or in our narrow valleys, the most suitable method of conservation of moisture, and for the increase of fertility, is by mulching. It fulfils every purpose served by surface cultivation, and, in addition, does a great deal more, at less expense in the end. After one deep preliminary forking, the trash is applied; it depends upon the kind of material used whether it needs to be deep; if soft grass is used it will disappear in three months in some wet district (but still be in the soil as manure, and so not wasted), but if tougher stuff, like banana trash, is used, it lasts for over a year at least. It is not too

much to ask that every October and November fields of bananas and cocoa, or whatever kind of staple crop is being grown, should be mulched, or that mulching should be gradually renewed in slack times. It can hardly be impracticable to procure mulching material if people prepare to use it. It cannot, however, be got tomorrow by making up one's mind to-day to begin mulching. There is, first, the piles of banana trash to be seen at almost every delivery depot; there is the large area of uncultivated bush-land existing on almost every estate which could be used for growing mulching material, and where, indeed, such material will generally be found already; there is the careful penning of every animal used on the estate for the saving of manure. Why should it have been practicable for sugar-cane planters, for so many years back, to make piles of vegetable matter for a mulch, and large quantities of animal manure, to keep up the fertility of large fields, and preserve their crops through dry weather, to a large extent, so many estates being in our very driest areas? Of course cane lends itself to the production of trash, but then most of the trash is burned now to save fuel.

On the red soils of St. Ann and Manchester, and on the dry coastlands of Trelawny, it was believed that bananas could not possibly be grown commercially. Certainly they did not grow in the natural way common to places with a deep, moist, loamy soil and in seasonable districts. If put in and cultivated in the ordinary way by forking they would hardly ever grow well. But at Brown's Town, in St. Ann, two cultivators made bananas grow, on a fairly large scale, in thin, red soil, by using heavy applications of animal manure, thus supplying humus and plant food, at the same time cooling the soil, for the red soils are hot and fiery. But to make this manure to cover an extensive area, would be very costly, and presupposed keeping a large quantity of stock for the purpose. But yet, why should not a landowner drive at least part of his herd into a paddock every evening to provide manure for an extensive cultivation of bananas? Sugar planters do so.

On poor, stony soil, two miles from the sea, and subject to strong and almost constant sea breezes, with a rainfall under thirty inches per annum, Mr. G. P. Dewar, at Harmony Hall, Trelawny, has made bananas grow profitably simply by a heavy mulch, and—although the soil is dry and stony—a thorough system of drainage. These have come safely through all the severe drought, when in more suitable places for bananas, without mulching, great loss has occurred.

The extreme value, however, of a simple mulch, and that alone, still remained to be proved. We have seen it plainly exemplified this season. At Kendal station, where quantities of banana trash lay wasting, hard to get rid of, the Hon. J. P. Clark, Custos of Manchester, put in about six acres of bananas on land—ordinary red dirt—that had grown successive crops of corn for about ten years. The suckers were just such as could be got from round the houses

of settlers in the district, there being no fields of bananas, and were not large, selected suckers. The land received one ploughing, and was heavily mulched in some places, lightly, but still well mulched, in others. The district has gone through one of the severest droughts on record, ponds were dry, pastures bare as brick, the leaves of orange and pimento trees wilted, yet those mulched bananas kept green and fresh all through, bore as good fruit as could be found in St. Mary, and next year's suckers are large and vigorous. No cultivation was done, very little weeding required, and no draining done. Some attention in these directions would still further have added to the percentage of straight bunches. Now if the mulch is kept up every year, cocoa will also grow on this land. People in Manchester may now add small fields of bananas to their operations. All have cow pens, and considerable quantities of trash of one kind or another.

We do not under-estimate the value of thorough cultivation with implements, but the sooner the light and hot soils are covered by some ground crop here the better. Ploughing or forking in heavy crops of cow peas is admirable, but this is for field crops when the plants are young; it is excellent, as a preliminary cultivation, before the mulch is supplied. For established bananas and cocoa, or any permanent crops, a heavy mulch is at once the most economical and most useful method of cultivation, keeping down weeds, conserving moisture, adding to the fertility of the soil at one time, and preventing wash. Weeding is the biggest item of expense of cultivation, and the most frequent source of loss in the tropics. Often much damage is done by labourers to staple crops, like cocoa, coffee, and oranges, in the forking and weeding. We have to use our wits to find the best methods suitable for our conditions. Northern systems do not always apply.

Lay down a board on the ground for a month, let the weather be dry as it can be, when the board is lifted the ground underneath will be found dark and moist and rich looking, and most probably perforated by worms, the presence of which means fertility. This shows the value of heavily shading the ground. One can see bananas and plantains growing through the piles of bricks in Kingston yards, although there has been so little rain, simply because the ground below has been kept shaded and cool. A mulch may not act on heavy clay soils in very wet districts in the same fashion as above described. We have before described mulching as an insurance against dry weather.

The subject is important, and requires intelligent discussion. Will experienced men, who have tried different methods, and who are thinking hard to get the most effective systems of cultivations for crops, write us their opinions?

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Mulching.—My bananas stood the drought wonderfully, considering that from November I have had only a few light showers, and up to now, no water, and have had to buy a lot for my cows

here to save them. I never experienced such dry weather, and, certainly, I would have expected every banana to be dead by this. My plants put in, in January, are quite fresh and alive, and in eight acres I supplied eleven roots, but they have not grown, only two to three feet high now. Then I have mulched, and it is *the* thing I believe. I use any and everything, and find cocoanut husks as good as anything. I use bush, cow dung, and penguins, and gather the fallen leaves in woods too.—PLANTER, Lower Trelawny.

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MULCHING.—I observe in THE JOURNAL for April, 1906:—"Then there is the matter of the banana trash which goes to waste. Some of the larger banana planters are taking back their trash from the depots, in their carts and waggons, to spread on their plantations as a mulch. The sooner the same practice is impressed on the small cultivator the better it will be for the country. The trash is very light, the carts go back empty. If the trash is well rammed down on the carts, they can carry a substantial quantity with hardly any drag on the mules." In the JOURNAL for April, 1907, I observe the following:—"So far as cultivations are concerned the great safeguard against the effects of drought is heavy mulching. While this is quite possible in small settlers' cultivations, it is not so easily carried out over 100 or 200 acres. It would be a heavy expense to get the material and apply it, but if it is thought to be an insurance against the almost total loss of a banana crop in the months of high prices, the expense should be calculated against the estimated loss. . . . If the mulching is done, and good showers do come after all in January, the mulching is not a total loss, indeed, it is not a loss at all, for it has still its manurial value, and it will prevent that profuse growth of weeds which always comes on after rains following on a spell of dry weather. Mulching is an insurance against loss by drought."

A great many people never dream of mulching land. There used to be heaps of banana trash in Montego Bay. In fact a gentleman told me it cost him ten shillings a week to get the trash off his wharf. On the other hand, in Lucea, growers are keen on banana trash; there is quite a rush for it. In Green Island, up to last year, no one would cart away banana trash; it was left to rot in heaps. I tried to persuade some people to cart it away, and spread it on their lands. When forked in, say the following year, it makes splendid manure; if possible, the forked land should be mulched. Some planters, who lived so far from the wharf that they could make only one trip of bananas a day, would not carry back trash, being too far, yet, as a rule, their carts and waggons went home loaded with people. Some say banana trash is no manure! Cambridge station used to be a great place for banana trash; rotten trash was in heaps; no small settler would cart it away. I was shewn a banana field in Hanover, which used to do badly before it was mulched with banana trash. The best and cheapest way to handle banana trash, is to get a baler. The carters can cart at so much per bale, and it can be applied to the fields

at so much per bale. Those who fancy banana trash is of no use as manure can give it a trial. In Europe and America earth is greatly used as a mulch. The market gardeners use rakes and rake the surface. The American professors of agriculture are keen on mulching —thin soil mulches. They claim the evaporation from an unstirred surface is at the rate of 6.24 tons per acre daily, but when mulched to the depth of .75, the evaporation is only 2.4 tons daily. To maintain the most effective mulches in the field requires frequent stirring (this applies to soil mulches) even though a rain may not have occurred to pack the soil.—R. T. TAYLOR-DOMVILLE.

POULTRY NOTES.

SLOW GROWTH OF POULTRY.—One of the principal causes of the slow growth of our poultry here, and the loss of size, is insufficient feeding, not so much quantity as quality. There is a monotony of corn. No chickens, turkeys, or ducklings can thrive properly, and grow quickly to a good size, without animal food. They do pick up some of themselves, else they would not live at all, but they want a great deal more. An inexpensive method of producing animal food for chickens, when duck-ants cannot be got, is the propagation of maggots for the young birds. To do this, a piece of flesh, either dead fowl or any other meat, should be hung up in the sun for two days. During this time the blow-fly will have deposited hundreds of eggs in the meat, which should then be buried in the run, by being covered lightly with soil. The maggots will work their way through the soil, and be much relished by the chickens. To prevent the whole thing being scratched up by the birds a piece of garden netting or wire netting should be placed over it.

Another way, and one which is really less trouble, is to hang the meat up in the run, about two feet from the ground, when the maggots will drop down and be very quickly devoured by young birds. The only disadvantage, in connection with this plan, is the smell from the meat; but when the chickens are right away from the house no inconvenience is experienced, and the birds do not lose any of the maggots. Old bones, buried lightly for a week in the run, [illegible] l then turned up, are productive of maggots too.

The production of animal food in this way should be tried by everyone who has chickens, as the birds make marvellous progress, and get safely through the dry times when green stuff is scarce.

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WATER FOR FOWLS AND DUCKS.—The fact that water forms one of the largest constituents of eggs should be sufficient to emphasise the importance of the provision of an adequate supply of drinking water for poultry of all kinds; but, in addition to being necessary for the purpose, water is required to satisfy and quench natural thirst, which is common to all live stock.

Water for poultry should be fresh, pure and ample, and the supply continuous, not intermittent, this being specially important in the summer time when fowls drink a larger quantity of water, and the probability of the liquid becoming impure and injurious, is greater. Pure water is perfectly harmless, but tainted, sun-heated water is a frequent cause of diarrhœa and similar complaints amongst fowls and ducks, and during hot weather all drinking vessels should be placed in a shady situation out of the heat of the sun, and be replenished at least twice a day.

Medicine can often be conveniently administered to fowls by dissolving or mixing it in the drinking water, and, as prevention is better than cure, it is a wise course to add a little permanganate of potash to the water when roup is prevalent, whilst a piece of camphor in the drinking vessel forms a valuable preventive remedy for gapes. When the fowls look dull and dejected, the probability is that their livers are wrong. Then, a handful of Epsom salts in a quart of water should be placed in their drinking vessel.

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PRESERVING EGGS.—Eggs become very scarce about October, and remain so until January; so scarce, indeed, that to satisfy our local requirements, eggs were being imported last year. Think of it. In the summer months, eggs, however, are plentiful, and, for private use later on, they can be kept by preserving them in jars or canisters.

There is one point which everyone who is keeping eggs for preservation should remember, and it is that those eggs which are laid by unmated birds can be relied on to preserve much more satisfactorily than those which are laid by hens that are running with male birds, and it is an advantage to the male birds to be taken away from the hens so that they may recuperate after the breeding season, and moult out in good time for readiness for next mating.

We will now consider the different methods available for the preservation of eggs, and will take them in their order of usefulness.

WATERGLASS.

The above substance as a preservative of eggs has only come prominently before poultry-keepers during the last few years, and it has undoubtedly proved itself to be the best means of preserving eggs at present known. Waterglass is a chemical known as silicate of soda, although the name is also applied to silicate of potash. Both are useful.

Silicate of soda is prepared by fusing together sodium carbonate, silica such as is supplied by sand or flint, and an amount of charcoal to assist the fusion. A liquid solution of silicate is prepared for the purpose of preserving eggs. The proportions generally used are 1lb. of waterglass to 10lb. of water; 10lb. of water measure 1 gallon. The solution is perfectly colourless and odourless, this fact being probably the cause of its popular name. It can be got from chemists, if ordered.

Some suitable vessel should be partly filled with the solution, and the eggs placed in it as soon as gathered. They must be completely covered with the solution, and must be left thus until required. We have eaten eggs which have been kept quite fresh by immersion in waterglass for a whole year, and they have been of better flavour than many which are sold as "new laid."

It will be found easier to prepare the solution with warm water, but it must be quite cold before the eggs are placed in it.

Unfortunately, eggs which are prepared in waterglass are—like those preserved in lime water—likely to crack when they are placed in water to boil, and the only remedy is to pierce each egg at both ends, before it is put into the saucepan, with a fine needle, and this will be found to be effective in many, but not all, cases.

The cracking is due to the fact that during preservation the pores of the shell have been stopped up, rendering the shell air-tight, so that when subjected to heat the air in the egg expands and the shell is consequently cracked.

LIME SOLUTION.

The system of immersing in a solution of lime and water has been the one most universally practised, but it is becoming somewhat superseded by the waterglass method.

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POULTRY FARMS.—People who read farm and poultry papers from the north—a commendable thing, but requiring always the remembrance of the difference in conditions—often become stimulated to try and do some of the great things written about.

There is, first, however, the great difference in markets to consider. This is not an industrial country, and, therefore, there is only a very small local outlet for products raised to sell here. The markets are easily overstocked. The poultry business is especially attractive, but our supplies will always be drawn from those who raise fowls as an adjunct to some other branches of agriculture. Poultry-raising, on a big scale, will not pay here. The following is our reply to a detailed list of questions, sent us by a lady, who, evidently, thought seriously of starting a big poultry farm :—

DEAR MADAM,—I am in receipt of yours of the 5th inst., and, in answer to your questions, reply as follows :—

(1) A poultry farm alone, pure and simple, would have no chance of paying in any parish or place here. Poultry raising can only be made profitable as an adjunct to another agricultural enterprise, where there is a large quantity of stock being fed, for instance, such as mules and horses, or where a large quantity of foodstuff is raised for market, and there is often a surplus, or stuff too poor to sell, but which can be used up. To buy food for poultry would at once put it out of court. I mean to buy to any extent.

(2) Cheap land would be sufficient, if it were only meant for poultry alone, but you must have land that can raise other crops, that is, corn and guinea corn, sweet potatoes, etc.

(3) How many acres you would require would depend upon how many fowls you were going to keep. You could not make a living under

a turn over of five hundred fowls, and it would take one thousand fowls to make a decent living.

(4) Cheap buildings would do. Some old pen, to be had cheap, where there are plenty of old buildings, would be sufficient, but it would be necessary to have small portable wooden houses to shift among the fields, where there are hundreds of fowls.

(5) It would be impossible to calculate the cost. There is no use discussing starting a poultry farm with all such equipment as is required in the north. It would never pay, and it is not needed here.

(6) The kind of poultry to raise would depend upon your district; different breeds would be required around Kingston to around Mandeville; a light and a heavy breed and crosses between them would probably give best returns. But a beginning would be made, of course, with good, common fowls, and pure-bred roosters.

(7) As for foods, you would require to raise corn, guinea corn. and the usual country crops for sale, so that the surplus, that is, what could not sell, be given to the poultry. A place with plenty of cocoanut trees would be a great advantage.

(8) Poultry are no more subject to be stolen here than any other country, and no particular care is taken here, any way, to prevent them being stolen. On a commercial scale the prevention of stealing would be part of the equipment. At Cook's great poultry farm, twelve miles out of London, a wire cable is stretched across each acre pen, a collie dog is chained to this by another chain with a ring, so that he can run the length of the field, and a watchman patrols the place every night, yet. even with these precautions, when I visited the place last, the proprietors had a case over the theft of a valuable Buff Orpington hen, worth about £5, which a man had stolen and eaten. It was a dear dinner to both parties.

(9) About the purchase of land, you would have, first, to fix your location, and then ask an estate agent to refer you to different places for sale near there. Personally, I would suggest Port Antonio as the likeliest place for a good market; but, on the other hand, it is one of the most difficult parishes to raise fowls and turkeys in on account of the heavy rains. It ought to be a good parish for raising quantities of ducks.

I have now answered all your questions, and may I be allowed to add, in conclusion, that running a poultry farm on a large scale, requires just as much skill, just as much experience, just as much natural aptitude for handling this kind of stock as is required for running a farm of any other kind. Your questions betray the fact that you have not, so far, the slightest idea of the business. One could just as well hope to run an engineering business, and make a success of it, without previous knowledge and experience, as to run a poultry farm with no previous training for the business. I, therefore, strongly advise you to let this enterprise alone. —Ed.

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Yaws.—Yaws in poultry is not always caused by dirt. In Cuba I know a man who keeps some game fowls on the bank of the Yara. There is a belt of woodland on one bank, with a large pasture at the back of it. Between the river and the bank is a patch of gravel, say about half an acre, and nearly every chicken there had yaws. I have a few game fowls in a pasture, and gave them Epsom salts in their water, and kept their quarters clean, yet most of the chickens had yaws. I have seen tumblers (pigeons) in Jamaica have yaws. I once had yaws amongst canaries in Jamaica that were kept perfectly clean.—R. T. Taylor-Domville (Manzanilla, Cuba).

[We assert again that yaws is wholly, entirely, and only caused by dirt in some shape or form. There is nothing in the above paragraph to the contrary. It is said that fowls had woodland, pasture, and gravel to run upon, still the chickens had yaws. Nearly all the fowls in Jamaica have unlimited room to run, but they do not take advantage of it, nor are they encouraged to take advantage of it. Where were these chickens referred to fed; and where did they sleep at night? We could almost guarantee that they were fed on the same spot every day, and that they were kept in a close box, or slept on the same spot every night. It is a wonder to us that pigeons here do not more often have yaws; their nests are, almost invariably, formed of their own droppings, and are never cleaned out. The perfect cleanliness of the canaries is often more apparent than real. Foul air is the most frequent cause of yaws, and they must have breathed it in some way or other. The yaws might have been caused through the food or water being fouled, or a cage bottom kept clean by scraping out but still smelling, although no odour might be apparent to the overlooker, unless he put his nose close to the dropping board, which he would not be likely to do. Fowls sleeping on trees get yaws, yet, apparently, get fresh air in abundance. As a matter of fact, the branches below, and the ground below, are foul with droppings, and, on a still evening, the smell arising is powerful. We don't suppose many have troubled to try this, but we have, and know.]

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How to Carry a Fowl.—It is frequently necessary to carry a fowl from one place to another on the farm, or among the different yards. The most common way is to pick it up by the legs and carry it with the head hanging down. This is the easiest for the poultryman, but is, no doubt, quite as uncomfortable for the fowl as it would be for a human being.

Simply take the fowl under the arm, with the head facing backwards, the arm around the body holding down the wings and the hand grasping the legs tightly above the feet. Held in this way the fowl is grasped so firmly that it has no chance to struggle, and yet is in a comfortable position. Try it the next time that you have occasion to carry a fowl from one yard to another.

SHIPPING ORANGES.—CAUSES OF LOSS.

So great a percentage of oranges, shipped from California to the Eastern States of America, rotted, that the Bureau of Industry, of the U. S. Department of Agriculture, made a special investigation into the causes of the decay. The following is a summary of the principal points :—

The loss from decay in oranges in 1905 amounted to $1,000,000 or more. The decay is caused by a common mould which usually

enters the fruit through an abrasion in the skin or else enters an orange that has had its resisting power weakened in some other manner. More than half the decay in the eastern markets can be readily traced to mechanical injuries in the skin of the fruit. Moist, warm air provides ideal conditions for the growth of the decay. Cold air or dry air may prevent the germination of the mould spores and retard the growth of the disease, if it has already started. It is unusual for decay to appear in a clean, sound orange even under adverse conditions.

CLIPPER CUTTING.—The average injury from cutting the orange with the clippers or shears in severing it from the tree has been about 5 to 8 per cent. in 1906. In 1905 it averaged 15 to 20 per cent. The injury seems to be reduced to a minimum when the picking is done by trained gangs of men under the control of the packing house, or when the packing house employs an inspector to guard the different growers against this type of injury. The injury appears to be more common when the fruit is picked by the box and when the pickers are not under careful supervision. The oranges delivered to a packing house by different growers may vary from 1 to 40 per cent. in the amount of clipper injury, and a similar variation is common in the fruit picked by different men in the same grove. In several of the largest interests in California this type of injury has averaged not over 2 per cent. in 1906.

STEM PUNCTURING.—The average injury from stem puncturing has probably not been greatly reduced in 1906. This type of injury is the result of leaving the stem of the orange too long. It has averaged not over 2 to 3 per cent. in large interests which have handled the fruit with great care, but it often runs as high as 20 to 30 per cent. There is usually from 2 to 4 times as much stem puncturing in washed as in dry brushed fruit. Stem puncturing is caused most commonly in the grove in dropping the fruit into the picking bag, and in pouring it into the boxes. In the packing house it is increased by steep gravity runs, by the oranges dropping into the bins, by washing the fruit and by other forms of rough handling. It is most severe in packing houses with overhead, complicated machinery, and in all houses in which the machinery is run at a high rate of speed. There are other common forms of mechanical injury such as gravel punctures in the oranges in the bottom of the picking boxes, finger nail cuts, and punctures and abrasions caused by incidental disorders in the packing house machinery.

DECAY IN THE UNBRUSHED, BRUSHED, WASHED AND IMPERFECT FRUIT.—An average of a large number of tests made in all parts of the orange district with oranges held two weeks in warm, moist rooms, or under the most favourable conditions for decay, gives the following approximate results :—

Unbrushed fruit apparently free from mechanical injuries, 1.5 per cent decay.

Brushed fruit apparently free from mechanical injuries, 4.0 per cent. decay.

Washed fruit apparently free from mechanical injuries, 12.0 per cent. decay.

Mechanically injured fruit (clipper cuts, punctures, etc.), 36.0 per cent. decay.

The unbrushed fruit from the coast to the upper San Bernardino valley has averaged from 1 to 2 per cent. decay in all places; the brushed fruit from 3.5 to 4.5 per cent., and the washed fruit from 11 to 12.5 per cent. Similar treatment in handling has produced similar results in all sections.

SHIPPING TESTS.—VENTILATION.—When shipped quickly after packing under ventilation to New York the decay in twenty cars of fruit forwarded from the last of February to the middle of April was as follows:—

Unbrushed fruit apparently free from mechanical injuries, 1.5 per cent.

Brushed fruit apparently free from mechanical injuries, 1.5 per cent.

Washed fruit apparently free from mechanical injuries, 4.5 per cent.

Mechanically injured, 17.0 per cent.

ICING.—When shipped quickly after packing under icing to New York (forwarded from March to May), the decay in about 35 cars of fruit has been as follows:—

Unbrushed, apparently free from mechanical injuries, 0.1 per cent.

Brushed, apparently free from mechanical injuries, 0.5 per cent.

Washed, apparently free from mechanical injuries, 2.7 per cent.

Mechanically injured, 6.0 per cent.

PRECOOLING.—When shipped quickly after packing at a temperature of 35 to 40 degrees Fahr. and iced regularly in transit, the oranges of all grades have arrived in New York practically sound. The decay in the imperfect and washed fruit has only been retarded under this method of shipment. The mould spores have not been killed. The fruit that would have rotted under ventilation or under icing is likely to decay as soon as it warms up. There is a double advantage in having clean, sound, unwashed fruit to ship. First, it carries well under all systems of shipping, and second, it is more likely to remain sound on arrival in the distant market.

DELAYED SHIPMENTS.—When brushed, washed, and mechanically injured fruit has been held in the packing house, one, three, five and seven days after packing, and then shipped under icing to New York, the decay in all of the grades in ten cars was as follows;

		Per cent.
Shipped the day of packing	..	2.0
Shipped 3 days after packing	..	5.0
Shipped 5 days after packing	..	10.5
Shipped 7 days after packing	..	11.0

The delay in shipping affects the brushed, sound fruit least, and the mechanically injured fruit most, as may be seen from the following data taken from fruit shipped, under icing, from the same house in April:—

Time of delay before shipping, 1 day, brushed, 0.0 per cent.; washed, 3.1 per cent.; injured, 3.2 per cent.; total 6.3 per cent.

Time of delay before shipping, 3 days, brushed, 2.0 per cent.; washed, 3.3 per cent.; injured, 4.3 per cent.; total 9.6 per cent.

Time of delay before shipping, 5 days, brushed, 2.5 per cent.; washed, 7.0 per cent.; injured, 19.0 per cent.; total, 28.5 per cent.

Time of delay before shipping, 7 days, brushed, 5.4 per cent.; washed, 7.0 per cent.; injured, 19.0 per cent.; total, 31.4 per cent.

In an iced car the decay is more serious in the fruit in the top tier of boxes, as the fruit cools more slowly than the oranges in the bottom tier of boxes. Sound brushed or unbrushed oranges appear to carry nearly equally well on both tiers. There may be two or four times as much decay in the top tier in washed fruit, and a still greater difference in oranges that are mechanically injured.

In precooled fruit the temperature of the car is more uniform from the top to the bottom. There is little difference in decay in the fruit in the two tiers of boxes. There is usually, though not always, a little more decay in the fruit in the top tier of boxes in cars shipped under ventilation as the air is warmer on the average in the top of the car.

These results, as far as they go, appear to indicate that the fundamental requirements for the successful shipment of the orange are that the fruit should be delivered to the packing house free from scale and free from mechanical injury, it should be handled in a packing house with enough care to prevent mechanical injury, and it should be shipped quickly after picking at the coolest practicable temperature. As conditions vary from these fundamentals the probability of loss from decay increases.

COW PEAS.

The seed laboratory of the Bureau of Plant Industry of the United States Department of Agriculture has recently collected samples of the cow pea seed from the states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas and Tennessee, to the number of 3,706 packages, and these samples have been carefully tested for vitality. The results obtained have been startling.

While a good grade of seed should show a germination of from 95 to 98 per cent., the seed from four states only—Arkansas, Tennessee, Louisiana, and Florida—showed an average germination of as much as 60 per cent., and only four varieties of cow peas con-

tained as many as 60 live seeds in each 100—the Iron, Taylor, Whippoorwill and New Era varieties. In the remaining five states from which samples were secured, and with the ten or more staple varieties of cow peas not named above, the average percentage of germination reached from 49 to 59 per cent. only.

During ordinary seasons cow pea seed sells for from $1.50 to $2 a bushel, but this year it has readily brought from $3 to $3.50 a bushel. Notwithstanding this high price, the farmer has found that the vitality of the seed has become so impaired that only a very small percentage has germinated, and in consequence of this poor quality of seed, the crops grown have been thin and most unsatisfactory.

As red clover and alfalfa are not generally grown in the South and the maintenance of profitable agriculture and soil fertility is largely dependent upon cow peas, this condition has entailed very serious consequences on many southern farms.

[Our imported seed, whether peas or corn, never grows so well as the native grown seed. We test all the seed got through this office. This year, cow peas, grown under irrigation here during the dry weather, gave, as nearly as possible, a 100 per cent. germination; grown from April planting, without irrigation through bananas, the seed gave also, practically, a 100 per cent. germination test.—Ed.]

* * *

Cow peas correspond in the South, for increasing supplies of humus and nitrogen in the soil, to the red clover in the North. So far it has been found the most suitable legume here for this purpose. It is a strong grower, when times are hard, and supplies of foodstuffs are scarce, banana planters, who are growing cow peas for a green dressing, have allowed their crops of peas to seed, gathered it, and sold it at a good profit, people readily buying the peas.

The cow pea thus came in handy after the hurricane, and now during the long drought, has again come in useful. While, of course, it is better, for the sake of the land, to turn in the cow peas just when they are in blossom, special circumstances may make it judicious to reap the seed. In this case there is still the benefit from the shade that has been afforded the soil, the keeping down of weeds by the thick growth of vines, and from the decay of the vines and roots in the soil. The roots, indeed, go deep down and leave stores of nitrogen there, besides keeping the soil open by their roots. There was a time when planters were sceptical of the great benefit that could be derived from the growing of leguminous crops, but we, who have observed their effects closely, have constantly advocated their use, and now they are coming to be regularly planted through young bananas, just as regularly as sugar planters have used them for green dressings. The modern sugar planter here has not failed to make and use large quantities of manure, to grow cow peas in the rows of young cane and plough them in, and to use

heavy mulchings. Largely, through these methods, he has pulled through as hard times, and as depressing conditions of crops, as any agriculturists have ever been subject to. It has been curious, then, how the banana planter, on the other hand, often an old sugar planter, has expected regular crops all these years without doing any of these things. The lands, mostly old cane lands, were still fresh for a new product like bananas, and as long as supplies of humus lasted, and, without high cultivation, gave good crops. On most estates now the cost of production of bananas increases; there is more cultivation to be done, more attention to the suckering of the plants, more clean-weeding has to be performed, while manure is actually being bought in Kingston and taken to the country, the banana trash is being carted back from depots, cow peas are being grown among the young bananas, and, after the lesson of this great drought, we expect to see heavy mulching carried through every November, immediately after the October rains have filled the soil with moisture. Then the mulch on the soil will conserve the moisture, prevent the baking of the land, keep the soil cool and soft, so that, in spite of the scorching sun, drying breeze, and lack of rain —all of which may happen in the spring—plants will flourish and produce good bunches as they have done this year where heavily mulched exactly under the conditions mentioned.

EXPERIMENTS WITH FORMALIN.

I NOTE in the last JOURNAL you state a wish for correspondence on the subject of experiments with formalin. I tried this on two shipments of oranges of about fifty boxes each, to New York, last season. The oranges (in a bag of fishing net) were dipped and held, for about half a minute only, in the solution recommended, then heaped in shallow heaps on a wooden floor, and turned over in a good draught of air to dry partially for a day, then placed in shallow boxes to finish drying. I found that the formalin hastened the colouring of the fruit very considerably, but as both these shipments arrived in far worse condition than usual, I had no desire to continue further experiments. I noticed that it was very difficult to get the stem end thoroughly dry. It also seemed to me that mould attacked the treated oranges left back in the house much sooner than those untreated, and almost always at the stem end, which inclines me to think that, even if the additional cost of handling were not found prohibitive on a small scale, the fruit cannot usually be quickly or thoroughly enough dried in the humid inland air.

As the colouring effect of the formalin solution is, doubtless, due to the action of the powerful gas which is liberated, experiment may perhaps prove it practicable to use formalin without the serious risk and cost of wetting the fruit. The fumes of burning sulphur have the same bleaching action, but, I understand, injure the fruit.—H. C. BENNET.

GRAPES.

In 1897 there was a drought, nearly as bad as the present one, in St. Elizabeth. There was no water nor food in the dried up savannahs there, but that was the best year for grapes—for quantity and quality—that those interested in the subject remember. These grapes were taken by the settlers to Mandeville and sold at 6d. to 9d. per lb., and there was more demand than supply. The city of Kingston had no supply of grapes at all, except, occasionally, a few bunches grown in one or two gardens in town, for which 1s. to 1s. 6d. was asked. In many of the people's yards, all through the savannahs in St. Elizabeth, there was a grape arbour; no attention was paid to the vine; it simply grew and bore. The Agricultural Society saw a chance for an industry which would, at the same time, provide the people with an easily raised crop, the products of which could be easily sold, and which would bear most in time of drought when other products suffered. A small grape farm was established as a nursery, from which plants would be sent out, not only the common black grapes, but those better varieties found suitable to the locality, after test. Now agricultural tests are necessarily slow, and extend over a series of years, but in the third year of the existence of this nursery, after running the gamut of ridicule and sneers at the idea of St. Elizabeth people growing grapes that could be sold—notwithstanding the fact that the grapes were already being grown and sold—after going through the usual experience of the Agricultural Society—starvation, of supplies resulting in half effort, the farm was sold out, and the whole effort to extend grape cultivation stopped. This effort had just got the length of having induced a few hundred more settlers to plant vines, and those that had one to plant several more; had just got a good many of those who had vines to realize that the grapes were not fit for cutting until they were black; that better fruit could be got by thinning out the bunches; that by pruning back the trees more fruit could be secured. However, the whole matter was stopped; there were a few more vines in the savannahs, that was all. People soon forgot to plant, to prune, to thin, and to manure. Mandeville has a few grapes in the months of June, July and August. Kingston still remains grapeless, although many people would willingly give 1s. a lb. every day of their lives for a supply. Another drought has come, the grapes in St. Elizabeth and the savannahs have borne well, the people who have them have sold at 3d. and 4½d. per lb. on the spot, 9d. in Mandeville, but there are not enough to be sent to Kingston. During all these years since the last great drought, if our efforts had been persisted in, there might not have been a single settler on the plains, between Manchester and Westmoreland, that could not have made several pounds out of his grapes at this time. There might also have been large quantities of beautiful White Muscats (which have been proved in time to grow just as well as black grapes there) sent to Kingston by coastal

steamer or by drogher. Before the grape farm was shut down, we tried to start an industry, and brought round the grapes satisfactorily, and sold them in Kingston.

Prevention is better and cheaper in the end than trying to cure ills after they occur. Grapes can provide money, so can cotton; guinea corn can provide a flour that keeps; cassava farine a meal that keeps. All are drought-resisting crops.

TAX ON BUTCHERS.

It was proposed, some time ago, to tax butchers in Jamaica. The country butchers here (Cuba), pay a tax of one dollar per head on all cattle killed. At least they are supposed to pay on all, but as a matter of fact, they do not. There are no Government Rural Police. The rural police here are employed on ranches and plantations, being recommended by the managers (also paid). It is highly amusing to see mounted cow boys (rural police) penning calves, armed with breech-loading rifles, revolvers, and swords. In a town that I know, no cattle are *killed* before 2 p.m. At about 1 the matadors (murderers) appear and tie up the cattle for slaughter—mostly bulls. Presently a policeman and a "vet" arrive; the policeman notes all the marks, and sees that none of the animals have been stolen (one must have a title for stock here), then the "vet" inspects every animal. At 2 p.m. precisely, the signal is given, and every animal falls dead. In an incredibly short time the beef is ready for the market; then the vet leaves.—R. T. TAYLOR-DOMVILLE.

TICKS IN CUBA.

THE late drought has proved that silver ticks cannot exist in Cuba. During an unprecedented drought, which lasted over seven months, I only saw *one* grass louse (young silver tick). As is generally known, silver ticks leave animals and remain on the grass for a certain time. In Cuba, when they leave an animal, their fate is sealed. The grass is alive with lizards, besides which there are numbers of peadoves, which eat silver ticks off grass, but not off animals. There are also a few ting-tings, also another kind of starling, very much like ting-tings. There were enormous quantities of the ordinary cow ticks, whose habits are not the same as the silver ticks. I have seen cattle, during the late drought, literally covered with them. On a huge American ranch, which is being formed near Bayamo, it is so large that each pasture is made large enough to contain from ten to twelve hundred cattle. The manager told me that, after fencing, he found the most necessary thing was to construct a dipping tank. It was even more necessary than constructing a dwelling house for himself. There are various methods

of killing ticks here, but so far I have seen none better than a mixture of paint oil, coal tar, and sulphur. I have observed that fowls, kept in pens, keep milch cows and their calves free of ticks. Cubans say their system of burning grass every year clears the pastures of silver ticks.—R. T. TAYLOR-DOMVILLE.

INDIAN CATTLE IN JAMAICA.

I AGREE with you that the "lion-tailed" (Brahmin) were the best cattle in Jamaica. I recollect when the herd at Shettlewood was all Brahmins. When the Indian cattle arrived they were crossed with Brahmin heifers, and the progeny were superb working steers, better than anything to be had in Jamaica at the present. Breeders should have kept *to half breeds*, which every one who has handled stock knows are the best. Instead of that they kept on breeding finer and finer. They were cautioned not to do so. As a rule the Indians in Jamaica have become leggy, wasting, and wild. Many of the best breeders in the Island are now looking about for suitable bulls to cross with their Indian heifers. The "lion-tailed" (Brahmins) came from India originally. There must be on some pens in Jamaica a few large bulls of the Brahmin breed. They should be bought up to improve the Indian herds. One could, with care and patience, breed up a herd like Shettlewood had, after the first Brahmin-Indian cross. The Porto Ricon bull would be the best animal to cross with Indian heifers. They are derived from American cows crossed with Indian bulls. A large dealer tells me the Americans were of the Jersey breed, which accounts for the Porto Ricon cows being such good milkers, and being so docile. The finest working steers in Cuba are from Porto Ricon cows, crossed with Indian bulls. They are huge, steady workers. Many of the Porto Ricon bulls, working in carts, are large and heavy. There are many colours: one variety has a white nose, and white around the eyes, just like Guernsey cattle. Another variety—in my opinion the best—has a black nose, black around the eyes, and red skin. All have fine skins and lion tails, and some show a slight hump like Indians. There is a law in Cuba against the exportation of cattle and horses, but the Governor of Jamaica could easily get a permit from the American Governor of Cuba. Some of the absurd laws are now being repealed. I am told there was a law disallowing any one man to grow two grape vines.

The working oxen in Sussex (England) are fine, large animals, long horned. The Hon. B. S. Gosset has imported two bulls from Porto Rico. As his Indians are good milkers, he will find the Indian-Porto Ricon a capital cross, both for milking and working. Some people, who have imported bulls from other countries, complain of their being rather small. But, as breeders well know, the male should be relatively smaller than the female; so the experts say in England. The English and American experts get the best

results from breeding in and in, but it requires an expert to succeed. Most of the working stock in these parts are from Venezuela, and the greater portion of them are either half- or quarter-bred Indians. A large dealer tells me Castro, the President, procured a number of Indian bulls, and turned them out; many became wild, some of which had to be shot. Some people in Cuba are crossing cows from Venezuela with Indian bulls, which is a great mistake, as the cows are mostly half- or quarter-bred.—R. T. TAYLOR-DOMVILLE.

BANANAS IN CUBA.

I AM now convinced that bananas are, commercially, a failure in Cuba. I have seen some, after a seven months drought, nothing could be worse. It must not be supposed that irrigation would solve the problem; the climate is far too cold to get the fruit to market at the right time. In December, in the lowlands of Santiago, say one hundred and twenty miles, due north of St. Ann's Bay, I have seen the thermometer at forty-eight at dawn. A friend of mine, on the hills, two thousand feet high, saw the thermometer at thirty-eight. In Santa Clara, lowlands, not two hundred feet above sea level, a friend of mine saw slight frost; thin ice, in fact, formed, and grass and cane leaves withered. In December, January, February, and March, the nights are so cold that bananas remain stationary. In fact bananas appear to grow downwards, as there is no rain, as a rule, in those months. There are three things against the cultivation of bananas in Cuba: to wit, dry weather, cold weather, and the high price of labour. The land is magnificent.

Californian oranges are now offered in Cienfuegos at ten cents each (fivepence)!—R. T. TAYLOR-DOMVILLE.

TREE PLANTING.

NEARLY every country in the world is now anxious about its wood supply, owing to the indiscriminate cutting and destruction of timber that has gone on, and many countries have undertaken systematic replanting. Perhaps Germany has been to the front in this, and their forest reserves are now exceedingly remunerative to the country.

We here are not sufficiently alive to the value trees and woodland are to the island, not only in relation to the rainfall, but also as shelter belts, timber for building, and not least, for fire-wood. There are many waste places, where quick growing trees could be planted with very little effort. In connection with Arbour Day, we recommended several kinds of useful trees that could be planted. There is no more useful tree than the Eucalyptus in its different varieties, the seeds of which are easily got here. The variety, called Eucalyptus Globulus, grows anywhere, grows quickly, and provides a great amount of fire-wood in a few years time, and can

be closely planted. These trees are very handy for wind-breaks as they are very tough. Other varieties of Eucalyptus can be planted for fence posts, such as Eucalyptus Leucoxylon, Eucalyptus Corymbosa, and for railway sleepers, such as Eucalyptus Rostrata and Eucalyptus Corynocalyx. Eucalyptus trees grow well from the sea-level right up to 4,000 feet, and one of their strongest recommendations is the great amount of dry weather they can stand. We again say we are not sufficiently alive to the value of systematic tree planting.

The grievous drought of this year, and the scarcity of water, should direct more attention to the deforesting still going on, and the necessity of re-afforesting our mountain slopes, more especially those bare, steep mountain sides which form the catchment of the Kingston water supply. No tree grows there more surely, nor more quickly, than mangoes. These grow readily from seeds flung down. Rows of these could be grown for shelter and shade belt for trees of more value to follow. We have eucalyptus, cedar, mahoe, bullet, and other timbers, and bamboo along the streams.

BEST METHOD OF CULTIVATION FOR FRUIT TREES.

THE proper cultivation of orchards, more especially in cases of large commercial plantations, is a question now receiving much experimental study from the agricultural stations. Bulletin No. 171, of the Ohio station, deals with this subject in a very practical and convincing way. Contrary to expectation and to popular conception, the Ohio experiments have shown that orchards may be killed by excess of kindness.

In 1900 the Ohio station planted an experimental orchard of forty trees each of Jonathan and Grimes's golden apples. The plantation was divided into four plots, each plot containing ten trees of each variety. The soil was of uniform character and good quality, having slope sufficient for good natural drainage. Plot No. 1 was given clean cultivation until about August 1 of each year, and then seeded to some leguminous cover crop, which was ploughed under the following spring. This method has been found satisfactory only for young non-bearing orchards on comparatively level soil. It entailed, moreover, much unnecessary labour and expense.

Plot No. 2 had clean culture during the entire growing season. The result was a speedy, complete, and disastrous failure. The soil of the plot was gullied and washed away over large spaces, exposing the roots and causing irreparable damage. After four years' trial the "clean culture" method had to be abandoned. On hilly land, such as is usually devoted to farm orchards, the failure of the clean culture method would have been even more complete.

Plot No. 3 was devoted to the "sod culture" method. In this method the trees are planted in sod, each tree set in a three-foot

circle of hoed ground. This circle is kept free from growth by hand work, and is gradually enlarged so as to keep the circle at all times of the same diameter as the top of the tree. The sod is kept closely clipped to simulate the style of an average lawn, but the clippings are allowed to remain on the ground as a mulch. The sod culture method gave fair results, but cannot be recommended as economical for commercial plantations nor for the home orchard, except when fruit trees are grown on the lawn.

Plot No. 4 was devoted to the "sod mulch" method. In this method the trees are planted in a good sized hole in sod land, and a circle of four feet enclosing the tree is immediately and heavily mulched with straw. The sod is clipped three or four times each season, and the clippings raked up and added to the mulch under the trees. The circle of mulch is extended as the tree tops expand, so as to be at all times of the same diameter as the spread of branches. The "sod mulch" method *proved to be the most profitable and satisfactory of all.* For hilly land it is the only practicable plan. For level land it is superior, both as to growth of tree and yield of fruit, to any of the other methods tried. By this method the necessary and often urgent operations of spraying, pruning and hauling out of trash can be done during rainy weather without injury to the land or discomfort to men and teams. This is a very important advantage in large commercial orchards, and is of no less desirability in farmers' orchards, where orchard work can be most conveniently done when the ground is too wet for routine farm work.

Orchards in sod mulch should not be pastured, but may be utilized as runs for poultry and pigs.

[This is exactly the system we have adopted and recommended for orange trees here. Indiscriminate forking among roots has done great damage to our trees.—ED.]

BEES.

THE LATE SPRING, AND PRICES ON HONEY FOR 1907.—The late spring in many of the Northern States, coupled with an excessive amount of rain in California, and the entire failure of the honey season in Cuba, does not give a prospect of a glut of honey for 1907. The markets, when they open up, should be firm, especially so this year—the first one when the National pure-food law has been in effect. We must not expect, however, that this law is going to work a revolution in prices in *one* year. It may take the dear public ten years to learn of the existence of such a law. Some fool papers even now are telling about manufactured comb honey, when they ought to know, if they know anything, that if such a product were mechanically possible it would be barred from the markets, especially so as new pure-food laws are being enacted in the various States at a rapid rate.

CONVERTING COMBS INTO WAX.—The solar or sun extractor is a most effective apparatus for converting combs into wax. Anyone may quickly make a temporary one by placing over a box a square of glass and tipping the box forward till the sun's rays fall perpendicularly on the glass. The box thus receives in that position the most intense heat possible from the sun. Inside the box place a bowl, and upon it a sheet of perforated zinc, and upon the latter the pieces of comb. In a very few minutes all the wax will have been melted and run down through the perforations into the bowl below. Continue the process till all combs are dealt with.

Another plan is to tie the combs tightly in a piece of canvas, drop them into a boiler, and weight them down, so that the canvas is kept below the surface of the water. When the water boils the wax will be melted and rise to the surface, where it should remain till the water is cold. It can then be removed in a cake to be re-melted and shaped as required.

Lastly, a Gerster wax extractor may be bought, and it will perform the work of wax extraction expeditiously.

Wax may be made lighter by bleaching or by the addition of sulphuric acid, but if it is carefully rendered by one of the methods above and made to pass through fine muslin, in addition to the ordinary strainer, the colour should be satisfactory.

A LESSON FROM THE DROUGHT.

NOTHING has so impressed me during the drought, which we have just passed through, as the value of good drainage and cultivation in helping plants through dry weather. It is hard to convince people, unless by ocular demonstration, that drainage helps to keep the earth, in which the roots of plants are growing, moist, in dry weather, but anyone visiting and noting effects of the past dry weather on well drained, carefully cultivated lands on the northside, as compared to those where the drainage is deficient and the cultivation poor, *i. e.*, the surface of the soil not properly broken up, cannot fail to remark the enormous advantage which the cultivated lands have over those which are uncultivated. The presence of a mulch, unless it is of a thickness very seldom seen, and, in many places, impracticable, does not appear to conserve the moisture in anything like the same degree that a much smaller amount of vegetable matter does in the well cultivated land, especially where the vegetable matter is carefully forked in.

Bananas, which were planted last year April, May, and as late as June, have already, on such land, been nearly cut out. Such a record, in such a year as this, is surely one of which any cultivator may be proud, and the ratoon suckers for next year's crop present such an appearance as to almost make one doubt that we have passed through such a drought as we have.

Cocoa on such land has yielded a crop very little inferior to that of last year, which one might almost refer to as a phenomenal crop, and the trees, except where exposed to very strong sea breezes, really look as though there has been no drought at all, and are putting on a blossom, which promise to cheer the heart of their owners with an autumn crop of exceptional heaviness.—W. CRADWICK.

RAMIE.

THE experience of long continued experiments in growing Ramie in India was summed up in the following information, from the *Tropical Agriculturist*, Ceylon, printed in this JOURNAL in May, 1897. We recently published information as to the results of a commercial venture in Ramie, carried on in India at a large expense, but given long enough trial over some years to justify the opinions expressed, which conform to our own opinions in growing Ramie in three different localities and climates here. We agree with the following:—"Rhea or Ramie was cultivated for some nine or ten years in and near the Saharanpur Botanical Gardens in India; it was then proved that Rhea growing there was usually quite unfit for conversion into fibre. If the top of the stalk was ripe the foot of it was green, if the end was green the base was only half grown and so on, whereas for purposes of fibre *the whole stalk should be a green flexible wand of even quality throughout*, such as can only be produced in an equable climate where the temperature varies but little throughout the year, and the atmosphere never becomes dessicated, a gentle shower or two falling every day. Ramie can never be grown profitably in any other climate, for three or four cuttings must be made in the twelve months to make it worth while. In a report from the Government of India, in 1881, there is a clear summary of the position made up to that day. (1) It is of no use growing the fibre if we cannot prepare it for the market. (2) It is of no use to invent machines if the fibre cannot be grown in large quantities. The collected evidence shows that Ramie will grow almost any place where there is sufficient heat but *not* that it will grow *commercially*. The evidence clearly points to the requirements being a great equability of conditions. Dry heat burns it up; drought kills it outright. It wants a moist air, no long dry hot months, a naturally rich soil which does not need much manure, plenty of rain, and no extremes of temperature. It is no use trusting to results obtained under special conditions, the only chance is to look out for places where, in the natural conditions, there are no extremes of heat and cold, of dry and wet."

All this limits the parts of the world where Ramie will grow successfully, limits the parts of any country where it may grow successfully, limits even small Jamaica to selected districts.

The crops that grow easily, and grow anywhere, are not usually worth much.

COMMENTS.

CATERPILLARS.—Referring to the article, "Notes on the Control of the Cotton Caterpillar," on page 174 of this JOURNAL, a great many people, otherwise favourably placed, are deterred from growing Sea Island Cotton, because of the danger of loss by attacks of caterpillars. These pests did great damage to fields planted in 1905, but, principally, we think, because no one was well prepared to deal with them on their first appearance. Cassava was just as badly attacked. It is interesting to note that this year the manager at Longville Cassava Plantation, being on the alert this time, observed the eggs in thousands on the leaves, and immediately started out with the wet spray or wash, made with London-purple (an arsenical poison like Paris-green but cheaper) and completely overcame them.

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MULCHING AND MANURING.—In spite of nine months drought, those enterprising small planters, who had saved their manure from their stock, and applied it to their land, along with a heavy surface mulch, we observed in Manchester and St. Elizabeth, were much better off than their neighbours, who could not be bothered with these ideas. We saw good yams dug up out of stony soil in Manchester, which had been so dealt with, and a crop of kidney beans just taken in, also big bunches of plantains, hanging green and nearly fit. At Tophill, Southfield, St. Elizabeth, in the middle of the presumably worst off district, four banks of negro yams, dug up this month—just as the rain came to break the long drought—yielded 30 lbs. weight. So there is positive proof that by application of the methods so strongly preached by the Agricultural Instructors and this JOURNAL, even a protracted drought can be guarded against, and food supplies secured. Both of these examples were grounds owned and worked by teachers, who had profited by the Instructor's teachings. Ultimately their example must affect the children they teach. Their energy and enterprise are commendable.

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DROUGHT.—It is most curious how local the showers have come, after nine months of nearly continuous drought. There have been rains, but not general rains. Even in Kingston heavy showers have often fallen over part of the town only. Southern St. Elizabeth had good rains, beginning on the 24th August, but they were not long continued, and very few people had ground prepared to take advantage of them.

A grant of £10 was made by the Agricultural Society to supply good seed corn, beans, and sweet potato plants to the small settlers in the savannahs and plains of Manchester and St. Elizabeth, and this was supplemented by a grant of £10 from the *Gleaner* fund, and £2 kindly sent by Dr. Neish of Spanish Town.

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JOURNAL.—A fresh contract has been made for the printing of this JOURNAL, and it will now, we hope, be issued regularly in the middle of each month. All copy and advertisements should reach us by the last day of the previous month.

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CUBA.—Mr. R. T. Taylor-Domville, Manzanilla, Cuba, has sent us some interesting notes on various subjects, some of which we have printed. After the Cuban war, many here rushed to the conclusion that Cuba would become a great banana-growing country, and that Jamaica would be "done for." We had our doubts. It is remarkable, however, how quickly many people here make up their minds that it is no use fighting competition; we must have a free hand or it is no use. Yet look how many sugar planters have steadily stuck to their guns! Our motto is "Never say die." It is no use raising bogies.

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CARBON BISULPHIDE.—The Island Chemist has now supplies of carbon bisulphide, which he will supply at a cost of 5d. a lb. This is the best thing to use for treating corn, or any other seeds, to kill the weevils, and to kill ants, and other insect pests at the roots of plants. He has also a supply of thymol, which is the easiest vermifuge to administer to kill worms in horses. These powders are sold at 3d. per horse dose, or 3s. per lb.

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TICSA.—We continue calling attention to the necessity of penkeepers ticking and washing their cattle at regular intervals, so as to keep down the plague of ticks that do so much harm to our cattle, and prevent anybody from walking through pastures, which is a great drawback to our tourist visitors. We advertise some good preparations. Penkeepers should try to find out which is the most effective, consistent with economy. The preparation, called "Ticsa," is of an oily nature, without being too thick and viscid, and retains its effect for quite a long time. We shall be glad to have the experience of it from those who have tried it.

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BRANCH SOCIETIES.—Branch Secretaries, on the whole, have appreciated the difficulty of our situation since the earthquake. Most of the Branch lists of members received were lost, and we had to ask for fresh lists, which could not always be expected to be sent quickly, as, at the same time, it was a new financial year with many Branches in January, and others in April. We cannot issue JOURNALS unless lists of Branch members' names are sent to us at the beginning of every Branch year, and as Branches mostly date their year from the date they started, while our new financial year is 1st April, there is here, sometimes, a misunderstanding.

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ADVERTISEMENTS.—We call special attention this month to our advertisements. These must be useful to our readers. Do you want anything in the line of hardware, a plough which everybody with level land should use, or a fork to break up that hard land, or a hoe to clear off those weeds, just look up our advertisements? There is no excuse for our readers' cows having ticks on them. Read the advertisement about Ferris' Disinfectant, and see what it can do, or about that other tick killer "Ticsa." Medicines for stock are kept by our advertisers to cure every internal or external trouble. For sores, cuts, and colds there is our old friend and native preparation "Jamaica Healing Oil."

Your creature comforts are not neglected: the Custos of St. Ann grows tea, which, he says, neither Ceylon, India, nor China can beat, so look out for his "Blossom Brand." It is a pure tea. *And there is still more to drink: various brands of fine Scotch* whiskeys are spoken about, and you can take your choice; or choose some excellent old rum from what our advertisers write about their brands. And cigars are advertised, so that you cannot but blame yourself, if you fail to try a good brand from Machado. Through the JOURNAL, too, your life can be assured; at least, we give you particulars of plenty of companies to write to about your new policy. You can also be furnished with an organ or piano, through this JOURNAL, by simply looking up Winkler's advertisement, and then writing to him on the subject. Do you want to build a house or repair an old one? then look and see what is said about cheap lumber.

BRANCH NOTES.

St. John.—The weather in this district is quite unfavourable. The time is very dry and hot. Heavy clouds, accompanied with high winds daily. No rain whatever, and cultivation at a stand still. Some coffee and orange trees are drying up. Most of the berries of the coffee trees are burnt by the excessive heat. The high winds have blown off most of the pears. The outlook, which is very serious, can be more imagined than described. The people are daily becoming poorer, and, I am afraid, should this state of things continue, the people here will be unable to meet their obligations. No food whatever in the district. People have to go several miles to get bananas. This is one of those red districts that have plenty of stones, hence it is not a good place for cultivation, except when you have a lot of rain. Even though we get rain, there will be sufferings here for some months. Only a few children, at times, can be at school out of such a large congregation, owing to the drought. By the way, we have a tank at Kitson Town, which, as it stands, is useless. We have neither seed corn, beans, nor peas. Could you inform me how best to get some? We need some of these to keep in hand until the rain falls, for as soon as it rains planting will be commenced.—S. A. BANTON, Hon. Secretary.

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Porus.—This Branch held its regular monthly meeting in the church schoolroom on the evening of the 3rd June. In the absence of the chairman, the Rev. J. R. Manley Cass was unanimously elected to preside.

Mr. Palache, our agricultural instructor, paid us his first visit for the year. He suggested that the minutes of last meetings should always be read first, so as to enable members to be in their places to answer to thei names. He also asked permission of the meeting to explain, before th confirmation of the minutes, that the report of his neglecting us, as se out in the Branch report in the January issue of the JOURNAL, was nc due to his fault, in any way, but to the ex-secretary in not answering an of his three letters during the latter months of the year. It was a regret table incident that the ex-secretary was not present to defend himsel Mr. Palache's explanation was accepted by the majority of member present. It was moved and seconded by Messrs. Thomas and Hendrick that this report be put in the JOURNAL. Moved by Mr. Thomas, and sec onded by Mr. McPherson, that the minutes be confirmed. Two nev members were enrolled, namely, Rev. J. R. Manley Cass, and Mr. R. A Henry. Correspondence was next read from Mr. Palache inviting th officers and members of this Branch to attend at the distribution of prize won, at the Mandeville Court House, on the 27th ult. Also letter fron Mr. Barclay asking for information re the drought and damage done, an to the extent that we may likely suffer. Mr. Williams' paper on pigs wa very encouraging on the whole, and fresh impetus was aroused in all especially after the extensive enlargement made by the Instructor, show ing how much money goes out of the island yearly to import this class c commodity, which comes in in various forms. The chairman compli mented both these gentlemen, and votes of thanks were tendered them A beneficial meeting, and an enjoyable afternoon, were then brought to successful close.—W. A. MORGAN, Secretary.

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Porus.—The regular monthly meeting of this Branch was held on Monday, the 5th August, at the usual place and hour. In the absence o the President, it was moved by Mr. C. Rowland, Assistant Secretary seconded by Mr. A. Thomas, "That Mr. G. H. Blagrove take the chair," which was unanimously carried. The Secretary was not present at the opening of the meeting, and the minutes were not read satisfactorily. I was suggested by Mr. J. T. Palache that the minutes be deferred until the arrival of the Secretary. The following members were present: Messrs S. H. Blagrove (in the chair), A. Thomas, D. Crosbie, W. T. McPherson R. Smuroe (Treasurer), A. S. Rose (Vice-President), A. McCorkle, Thomas Morgan, W. A. Morgan (Secretary), C. Rowland (Assistant Secretary) J. T. Palache (Instructor), and some visitors. A letter from Mr. J. Bar clay, Secretary of the Mother Society, was read re co-operation of ou coming show, also one from the President, giving his reasons for not being present, and stating he would be quite willing to go hand in hand with the Kendal show, but as the money collected was for a show in Porus, we must have ours first, in order that our exhibits may be ready to go tc Kendal also. At this stage the Instructor gave his opinion of the object of a show, which is that people should see better animals and better pro ducts, etc. He also expressed that little, petty shows, in his opinion, would not work out to much good, and urged co-operation with Kendal, so that one useful and attractive show could be had. He said that Chris tiana had already agreed to join Kendal and put off hers. A bridge petition from the people of the Clarendon Park and St. Toolis district was read, when it was decided that it be signed, on behalf of the Society, by the President and Secretary, and be sent to the Parochial Board of the Parish. The Instructor here asked that the hour of our meetings be changed, as he had to travel next day to St. Elizabeth, which would always be inconvenient for him after getting home at a late hour, but that the matter be left over to next meeting, when there might be a fuller house. The Instructor, in his opening remarks, brought to the notice of those present the Prize Holding Scheme, and urged for more and keener competition, showing that in 1903, and the succeeding year, Manchester

held the first place in the Island, and that the improvements on the houses were most pleasing, and further showed that when the houses were improved the stock would next be improved, which would assist us in holding better shows. In the report read, great stress was made by Mr. Cradwick on the holding of Mr. John Brown, of Plowden, which was represented as the champion holding of the Island. Mr. Palache hoped that the coming contest would be a much keener one. He also hoped that cultivations would be improved, so that the products be better, and further expressed his willingness to assist any who might want to go in for the coming competition. Members here expressed their willingness to make more entries. On motion of Mr. A. Thomas, seconded by Mr. W. T. McPherson, a vote of thanks was tendered the Instructor.—W. A. MORGAN, Secretary.

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Hampstead.—The annual general meeting of the Hampstead Branch took place in the schoolroom on the 17th July. Present: W. Cradwick, Esq., Travelling Instructor; H. J. Crooks, James Ashton, Charles White, Thomas White, Thomas Forbes, Henry Burrowes, Thomas Douse, Ucal Burrowes, William Lindo, Arthur Burrowes, H. A. Menzies, Samuel Crebb, David Osborne, Alexander Lawrence, Alfred Champagnie, Charles Patterson, Joseph Ferguson, Samuel Langrin, David Thompson, Alfred Wright, Charles Champagnie, Mrs. Morgan, Mrs. Palmer, Mrs. Charles White, Miss Sarah Bailey, Mr. Daniel Deck, and the Secretary (members), as well as a good attendance of the general public. The Secretary called the meeting to order, and Mr. Crooks was voted to the chair in the absence of the President. Before proceeding with the reading of the minutes, the Secretary moved the suspension of the standing orders to bring forward the following resolution:—"The Hampstead Branch of the Jamaica Agricultural Society desires to place on record the severe loss it has sustained in the sudden death of Mr. Eugent Champagnie, a member of the Managing Committee, and a zealous supporter of the Branch, and adjourns for five minutes as a mark of respect to his memory." Mr. Cradwick seconded the resolution, and desired that his personal regrets at the death of so useful a member of the Jamaica Agricultural Society, as well as his high opinion of Mr. Champagnie, be recorded on the minutes. The Society adjourned amidst profound silence. On the resumption of business, while the minutes of the last meeting were being read, the President entered and took his seat. The Secretary intimated that he had ordered cotton seeds and cane tops for distribution among the members from the Agricultural Department, and would distribute them as soon as they are received. Mr. Cradwick suggested that tests be made with the cane tops, so as to find out the variety best suited to local conditions of soil and climate, with a view to the propagation of that particular variety. A special committee was appointed to revise the rules of the Society, and arrange preliminaries for the show of 1908, and report at the next meeting. The election of officers resulted as follows:—President: V. L. M. Sanguinetti, Esq., M.B.P. Vice-Presidents: H. J. Crooks, James Aston, and Lewis Thompson, Esqs. Executive Committee: Messrs. Thomas Douse, Daniel Jenkins, Samuel Crebb, Edward Day, H. A. Menzies, Charles White, Thomas White, and Alfred Wright. Secretary: E. Samuel Exell. Assistant Secretary: Mrs. E. S. Exell. Treasurer: H. J. Crooks, Esq. Mr. Cradwick's address was curtailed as the business meeting was somewhat lengthy. He briefly reviewed his mission to St. Mary, under orders from Sir Henry Blake, in 1896, and his report then on the possibilities of the soil. His prophecy, with reference to the adaptability of the soil for banana and cocoa growing, has been fulfilled, and he is of opinion that St. Mary possesses abundant resources, which have not, to any great extent, been exhausted. It is noteworthy that Mr. Cradwick's report, in 1896, is the only one of its kind on record which has been made the subject of a message from the Governor to the Legislative Council.

The lecturer called particular attention to little things in agriculture, showing that, in attending to small matters, the foundation of future greatness was being laid. He dwelt upon the advisability of starting the jippi-jappa hat industry in these districts, and promised to get all the particulars re growing of the plant, preparing the straw, and instruction in hat-making, and report at the next quarterly meeting. He was confident also that the growing of vanilla would be a success here, and he promised to bring seeds, etc., with him on his next visit, and give instruction on the growing of it. Practical hints on the subject of drinking water closed an instructive address. A hearty vote of thanks was accorded the lecturer, and the meeting adjourned to the second Thursday in August.—E. SAML. EXELL, Hon. Secretary.

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Aberdeen.—The monthly meeting of this Branch of the Jamaica Agricultural Society was held on the 20th July, at the usual hour. There were present: Mr. J. E. Bailey, Vice-President, in the chair; Mr. S. P. Osborne, Treasurer; Mr. H. W. Hay, Secretary, and nine other members. The meeting being called to order, the matter of the jippi-jappa hat industry was gone into, but as certain information, which Mr. Cradwick was asked to furnish, was not to hand, owing to circumstances over which he had no control, it was decided to postpone the matter until the next meeting on August 10, when he will be present. The Secretary then read a letter from Mr. Barclay re cotton seeds. It was decided that the Secretary ask that gentleman to send small quantities of both kinds of the said seeds for distribution among the members of this Branch Society. There was also some talk about rubber seeds. It was decided that those members who wished to have a supply of these seeds should lodge with the Secretary such an amount of money as will cover the cost of the getting of the quantity required. There being no other matter of importance the meeting closed. This district is now having very seasonable showers of rain. Nature all looks gay. Vegetation of every kind looks green and flourishing. The drought is fairly gone. There is, however, a great scarcity of food. Yams and cocoes can scarcely be had. This is chiefly due to the extensive sales that went off during the four past months, owing to the great number of buyers, who came from St. Thomas. There is a very large crop of mangoes just beginning to ripen, and also a large crop of breadfruit. This latter, however, is not fit for use yet. The banana trade is brisk and lively, but the price is only one shilling per nine hands up here.—H. W. HAY, Secretary.

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Springfield.—The quarterly meeting of the Springfield Agricultural Society came off on the 26th July, 1907. Present: J. Jacob Irving, Esq., Vice-President, in the chair: Mr. D. Adolphus Smart, Secretary, and Messrs. A. J. McLaughlan, E. Perkins, S. Leach, S. Shaw, and B. B. Morris. Minutes of meeting, held on the 26th April, were read and confirmed. Minutes of the last meeting having not appeared in the latest issue of the JOURNAL, it was agreed to call the attention of the Secretary to the fact. Letters were sent to some members for the non-payment of subscription. Some paid up and resigned, among whom are Messrs. S. Brown, J. A. Roper, Robert Mason, and Alexander Stephens. Some have not yet replied. A letter from Mr. H. D. D. Mennell was read, promising to visit the district on the 5th August. This was, however, followed by another postponing the visit for Monday, the 19th. Mr. A. J. McLaughlan bought a kid for 4s. 6d. from the Society's fund in last year. He now gives the cheering report that the animal grew nicely, and gave a lot of kids, which he sold for 8s., while another lot is shortly looked for. He suggested that others may, in like manner, work in the interest of the Society. A vote of thanks was accorded to Mr. McLaughlan. The following resolution was moved, seconded, and carried that "When the Society is in funds, any capable member may draw such sum that can be

afforded for the investment in small stock on the Society's behalf, after the matter is brought before the committee for approval." Mr. D. A. Smart agreed to take a kid as per resolution. He requested Mr. McLaughlan to seek a suitable one, which will be paid for by the Treasurer. Mr. Samuel Hall, Potosi, and Mr. Andrew Hall, both Montego Bay P.O., complained that, for some time, they had not received a JOURNAL. Mr. George McFarlane and Mr. O. Chisholm, both Montego Bay P.O., were unanimously elected members of the Society. The meeting adjourned after giving a vote of thanks to the chairman.—D. ADOLPHUS SMART, Secretary.

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Darliston.– There was a meeting held at the Enfield schoolroom, Westmoreland, of the Darliston Branch of the Agricultural Society on Friday, 19th July, 1907. The minutes of last meeting were read and confirmed. A letter from the Secretary of the Jamaica Agricultural Society, together with receipt for affiliation fee, was read. The notice of motion for discussion, on "Time to be fixed for holding meetings," fell through in the absence of the mover, and it was decided to fix the hour of meeting at 9 a.m., on the third Friday in every month. The President spoke at some length on the usefulness of these monthly meetings, if the members, themselves, would take interest in them, and attend them, and asked for some expressions of opinion in agriculture. In response, Mr. Jackson Stewart gave a very instructive and interesting experience on the advantages of cultivating more deeply—using the fork instead of the hoe—of draining with judgment, and manuring carefully. He urged the members present to adopt the President's suggestion to put aside a piece of land, if only a chain square, and cultivate that with fork and spade, with drain and manure, and keep the members, at their monthly meetings, acquainted with the progress made, discuss their difficulties, and ask, when necessary, for information and guidance. This was endorsed by Mr. W. Smalling, who said his experience was the same as Mr. Stewart's that he had used white lime freely in the cultivation of cocoes, and that since he had dug large holes and used white lime, he had never suffered from cocoe-rot, but always gathered large crops of large, healthy cocoes, as well as large cocoe heads. He also gave some interesting statements about the St. Vincent yam, with which he was experimenting, and recommended the members to cultivate it, as well as the ordinary white yam. Mr. W. H. Cooke and Captain Coward suggested that some portion of the chain of land mentioned by the President should be devoted to the cultivation of Irish potatoes, than which there was no better crop to be cultivated, both for rapidity of growth and for market. Mr. Stewart said: "Cabbages too." He had only a day or two ago cut a cabbage weighing 15 lbs. Mr. W. J. H. Cooke showed some very fine Irish potatoes grown by him at Windsor Forest, and said that he hoped to gather in quite a large crop. After the election of Mr. Charles Cooke as a member of this Branch, the meeting adjourned to Friday, the 16th August.—I. H. HEDLEY, Secretary.

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Hanover.—Our quarterly meeting was held on Saturday, the 17th August, C. A. Cover, Esq., B.A., President, in the chair. It was agreed to form a new district by separating Lethe and Hopewell, with Lethe as a district, and Mr. D. W. Mowatt chairman, and Watford Hill and Hopewell as another district, with Mr. A. C. Robinson chairman. The Secretary reported the efforts made to obtain sweet potato slips. He regretted to state that those obtained from the Prison Farm did not seem to be thriving very well. The slips had "sweated" on the journey. The correspondence about arrowroot, between the Secretary of the Parent Society and the Secretary, was read. The correspondence showed that twenty barrels were required in February to March. The Secretary stated that he was making arrangements for the purchase and shipping of the arrowroot. The members present were urged to encourage the people to cultivate the plant. The Secretary reported that over 4,000 jippi-jappa plants

had been obtained through the Society and paid for. It was decided to order 2,000 to be sold in the districts of Askenish, Brownsville, Riverside, Jericho, and Dry Hill. It was agreed to give a grant towards the purchase of straw, in connection with the class proposed to be held at Dunalva. A letter was read from the Secretary of the Sav.-la-Mar Branch asking information about jippi-jappa hat classes, etc. This information had been supplied by the Secretary. It was reported that there were enquiries being made for criollo cocoa pods and beans, but that none could be obtained. The Secretary submitted a list of proposed visits, drawn up by Mr. Mennell and himself. It is as follows:—Sept. 2, Monday, Green Island; Sept. 3, Tuesday, Green Island; Sept. 4, Wednesday, Kendal; Sept. 5, Thursday, Riverside; Sept. 6, Friday, Cacoon and Greenland; Sept. 7, Saturday, Lucea and Richmond; Sept. 9, Monday, Harvey River, and Askenish; Sept. 10, Tuesday, Maryland; Sept. 11, Wednesday, Brownsville: Sept. 12, Thursday, Pondside; Sept. 13, Friday, Gurney Mount; Sept. 14, Saturday, Miles Town; Sept. 16 to 19, Lethe and District. A cash statement was submitted, which showed that there was a balance from the show account of £2, and a sum of £5 12s. 3d., ordinary account in the bank, and there was a sum of 7s. 2d. in hand. The next quarterly meeting will be held at Lucea on the 16th November, at 1 o'clock p.m.—JOHN F. GARTSHORE, Secretary.

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Central Cornwall.—A very profitable meeting of the Branch was held at Mount Reece on the 17th August. Mr. J. H. Oliphant, Vice-President, presided. In his opening remarks, he said earthquakes and droughts may come and go with their injurious effects, but agriculture must go on forever, and those who are placed in a position to improve it must not give way when every thing does not move well, but fight against hardships for success. The business of the meeting was attended to in good time. The Secretary was asked to write for information respecting the jippi-jappa hat industry, as it is the desire of the Society to start it in connection with the Branch. The agricultural plot of the Branch is looking up well, notwithstanding the drought, which has baffled the plants. As stock-rearing is a source of wealth in the district, the Society is thinking of getting another pure-bred boar, so as to ensure good breeds of pigs. The Secretary was instructed to write Mr. Mennell, asking him to pay some attention to agricultural interests in these districts, which, on account of local conditions, require great attention. It is pleasing to note that the Government is seeking to have the siding on the railway line, between Catadupa and Ipswich fixed. This is an able facility to fruit-growers in this extensive district, and we all look forward to its starting with much lively hope. The next meeting will be held at Montpelier schoolroom on Friday, the 20th September.—E. S. JARRETT, Secretary.

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Rio Minho.—The annual meeting of this Branch came off at Park Hall on the 20th August, 1907, at 6.30 p.m., A. Harvey Davis, Esq., presiding. The Secretary presented his annual report, for which he was thanked. The officers were re-elected. A sharp discussion took place as to the advisability of holding a show, and it was at last moved by Mr. McKay, and seconded by Mr. John Sharpe, that the next show be held on Easter Monday, 1908. The people are much interested, and everything points to a very successful show. We want all the help and advice to make it a success. The Society decided to purchase a pure-bred rooster for the use of its members, so as to introduce fresh blood in the poultry industry, a business which is not at present very flourishing. Mr. Hirst, the Instructor, read a paper on the pruning and timing of bananas, showing that the culture was a science, and it must be so regarded, if we want to make money out of it. It was agreed to hold the meetings of the Society on alternate months, the Wednesday before full moon, hour being fixed for 6.30 p.m.—W. THEO. MCKAY, Secretary.